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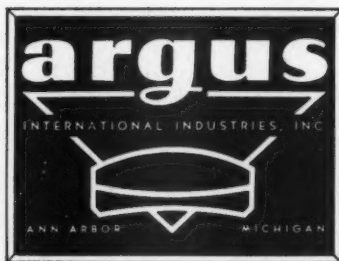


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★ Minicam Photography

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Joseph Muench

COVER BY L. WILLINGER
Model—Frances Gifford of MGM

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TODAY...over there



here and I am enclosing it for you.
Boy isn't it a honey? I think I'm
getting better with every shot. I b
a guy only had enough time left
over from this war business, I bet
I'd be taking some prize winners!
Put this with the rest of the



TOMORROW...back home



**FAR MORE PRICELESS SUBJECTS
AND FINER-THAN-EVER CAMERAS
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When there is "time left over from
this war business," everybody will
take better pictures. Until then we
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Portraiture Boom Presents Camera Hopefuls With Unprecedented Opportunity

1. Something New was added to the long list of success stories concerning graduates of New York's great cosmopolitan SCHOOL OF MODERN PHOTOGRAPHY when Arthur Avedon, one of the School's most gifted alumni of the 'class of '42,' opened a swank Fifth Avenue portraiture atelier to corral some of today's plentiful portrait business. Gratiified with his own progress, Avedon turned to the School for an ab'e assistant,—decided on MARTHA LADY FERRIS, whose excel'ent student portraits (see above) attest to her talents.



By MARTHA LADY FERRIS



By ALBERT KATZ

2. At School, ALBERT KATZ progressed swiftly under the wisdom-laden guidance of the faculty's crack photographer - instructors. Mr. Katz, a professional photographer before enrolling at the School, now operates an up-and-coming studio in Hartford. As is apparent in his School photo (left), he is an accomplished portrait photographer and is making the most of today's portraiture boom. Other recent graduates are now doing professional por-

traiture from Park Avenue to Panama.

3. Experimental Photography, part of the advanced modern schooling methods at THE SCHOOL OF MODERN PHOTOGRAPHY, provides students with the urge to become camera stylists. The result is work of exceptional character by undergraduates. Typical is this clever fashion shot by young JOSEPH GONZALES, who expects soon to join the small army of SMP graduates now doing their "shooting" for Uncle Sam with a camera.



By JOSEPH GONZALES



4. Information Please: "What about tuition fees?" Specialized courses, day or evening, are exceptionally moderate. Visit the School, or write for outline of courses. Address H. P. Sidel, director, Dept. M2.

THE SCHOOL OF MODERN PHOTOGRAPHY
136 East 57th St.,
New York City

The Last Word

Wherever You May Go

Sir:

The genial thing about being a photographer is that wherever you go, you will find other photographers doing the same thing you do; trying almost in the same way to accomplish what you are trying to do at your home.



Here is a little girl, and a bigger one of the pin-up variety; both developed in D-76.

M. E. KOOR,

c/o Electric House
Fort Bombay, India

Contest

Sir:

We are starting a contest for photographs containing smoking pipes and we would appreciate the cooperation of your publication in making our contest known amongst the country's amateurs.

1. The contest is for photographs in which a man's pipe holds the major interest. Photographs may be of a pipe in still life or table top; or of a pipe with model. The treatment of the photograph is left to the individual entrant. It may be a character study, a humorous study, a glamorous study, etc.

2. Prizes are: 1st prize—\$50.00; 2nd prize—\$35.00; 3rd prize—\$25.00. Seven honorable mention prizes of a Mastercraft Custom Made pipe each.

3. All photographs become the exclusive property of the Mastercraft Products Company, and will not be returned.

4. Entries should be size 8 x 10 or larger.

5. The deadline of this contest is March 20, 1944.

6. All entries should be sent to Mastercraft Products Company, Contest Editor, 2 West 47th Street, New York 19, N. Y.

MASTERCRAFT PRODUCTS CO.,
S. Newton, Sales Manager.

Fundamentals

Sir:

I thought the article on "Fundamental Optics" splendid and intend to keep it for reference.

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American Optical Company.
Southbridge, Mass.



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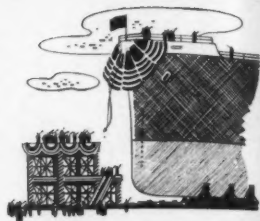
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For My Son

Sir:

My son, a Marine in the South Pacific, wrote me a letter asking me to take a Pin-up picture of his girl friend. After reading Mr. Fontaine's article about opening the iron door I went to work.

I piled some sofa pillows on the floor, put my model on them, put an old antique picture frame around her neck, combed her curls, and used basic lighting. Needless to say, I was surprised at the results.

Well, there is my story and I hope that other MINICAM readers will have the fun I had "letting my hair down" for the first time.

If they all go to work right now I'm sure that OUR boys will have more Pin-ups of their best girls.

The film I used was Isopan exposed at one-half second f16, developed in Defender 777. My camera is a 4x5 View Camera. The original 11x14 prints were Nelson toned.

GAY LAGESSE,
New York 17, N. Y.



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"Old Rascal," by Alex. L. Scheer of Dearborn, Michigan, has hung in:

Muncie International Salon - 1942; 3rd Cape Cod Salon; 3rd Champlain Valley International Salon; 17th Annual Salon of Houston; 51st Toronto International Salon; P. S. A. 1942 International Salon; 2nd International Victoria Salon (Canada); New York Salon - 1942; 11th Minneapolis Salon; 8th Des Moines International Salon; 10th Wilmington International Salon; Oklahoma International Salon - 1943; New York 10th International Salon (P. P. of A.); 8th Rochester

International Salon; 30th Annual Pittsburgh International Salon; Montreal International Salon; 5th Watertown International Salon (N. Y.); 3rd Ozarks Salon (Springfield, Mo.); 12th Detroit International Salon; May Salon, Springfield (O.); 7th London Salon (Can.); 1st Columbus International Salon (O.).

Enlarged with a Wollensak f4.5 Velostigmat . . . of which Alex Scheer says, "It produces sharp, brilliant salon prints from portions of 2 1/4" x 3 3/4" negatives . . . I noticed a surprising improvement in print quality when I began to use a Wollensak enlarging lens." Improve your photography with a Wollensak.

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WOLLENSAK OPTICAL CO., ROCHESTER, N.Y.

Newspaper Flash Technique

Sir:

This is a belated response to your invitation of a couple of months ago to hear from newspaper photographers.

My first thought is one on meeting an emergency in synchro-flash, which the battery situation now seems to make more uncertain than the scarcity of bulbs. Even if the photographer is able to get new flashlight cells he will find those of wartime manufacture run only 5 to 7 amps while magnetic trippers like the old reliable Mendelsohn require about 10 amps for sure-fire synchronization.

The solution lies in adding more power. Unfortunately stacking on three extra cells increases the weight of the outfit but it's nevertheless practical because it eliminates finger-crossing guesswork, particularly on multiple flash.

Use of a discarded flashlight case is the simplest way to add the second battery of three cells, which is wired parallel to the first. Together they give an output of about 12 amps, depending on the strength of the cells.

Attaching the second case and making the connections in the handiest way is something for the individual to figure out for himself. My Mendelsohn has a bracket on each side for either right-hand or left-hand mounting, which made it easy. A second camera shoe riveted to the flashlight case makes it possible to quickly mount it on the side of the synchronizer case.



By having the shoe on the flashlight case grounded the negative side, the parallel wiring connection is automatically made. A single wire from the top hooks up the other side by contact with the positive prong of the tripper's plug-in. A small lug on the end of that wire with a hole only large enough to receive the prong snugly assures good contact. That's all there is to it and it gives the tripper that "right feel" that assures you that you're in sync. This was a farmhouse fire and volunteers were using buckets. Half-second at f4.5.

LEWIS C. DEBO, *Managing Editor*,
Creston News Advertiser, Ia.



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10x10	48 gr.	1	4.00 gr.
4x6	250 1/2-gr.	2	.75 1/2-gr.
10x10	125 gr.	2	4.00 gr.
4x6	300 1/2-gr.	3	.75 1/2-gr.

BROMIDE PROJECTION

DOUBLE WEIGHT SMOOTH MATTE-TYPE 6

Size	Quantity	Contrast	Price
8x10	15 gr.	1	\$4.00 gr.
5x7	33 gr.	2	2.05 gr.
6x6	200 1/2-gr.	1	1.00 1/2-gr.
6x6	125 1/2-gr.	3	1.00 1/2-gr.

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BROMIDE PROJECTION

DOUBLE WEIGHT GLOSSY-TYPE 8

Size	Quantity	Contrast	Price
8x10	129 gr.	1	\$4.00 gr.
5x7	110 gr.	2	2.05 gr.
8x10	50 gr.	2	4.00 gr.
5x7	95 gr.	3	2.05 gr.
8x10	200 gr.	3	4.00 gr.
6x6	100 1/2-gr.	1	1.00 1/2-gr.
8x10	75 1/2-gr.	2	2.25 1/2-gr.

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photo letter for

Sgt. Red McLean
80756230 A.P.O. 487
% Postmaster,
San Francisco, Cal.

The hollyhock plants we gave to the Ritters came up beautifully last summer, white, pink and red ones. This camouflaged John's mailbox so well that we got some of their mail.

Dearest

Remember that crazy note you sent last June, just after you landed? For a minute I thought you were "sacki-wacky" from bottled goods the Japs left behind. You asked for "pictures of all the little things at home"—that's what you thought of most, you said.

These pictures may not travel as fast as V-Mail, but should reach you for a little birthday surprise. How did I get them? Well, Red darling, your Camera Club members helped me out and they got a big kick out of the idea. They went

through their negative files, I guess, (yours too) and then Joe, Ed and Charley took some recent shots of the house and Tommy. I have written on the back of each one and, honey, please let me know which ones mean the most to you way out there, so that in my next photo-letter I may send you more like them. Show the boys the picture Dad is sending of you at the tender age of nine in that leaky old skiff—some change to your present landing barges, yes? They do have the same general shape.

It will be a long year in March since you shipped out. I'm putting this week's news in V-Mail. Note the post-mark on this so you can let me know how long it takes to reach you. Tommy said "Da-Da" and I say "take care of yourself." We hope it's true that we may see you in 1944.

Love,

Harriett and Tommy



*What memories
this doorway has for
both of us! It took a
long time to say good-
night, didn't it?*

Doc. looks keen

in his uniform. He's a Major now with the Troop Carrier Command. Gail tried to salute him with hilarious results. She must have grown 4 inches since you saw her.

PHOTOS BY GEORGE R. HOXIE





Will you ever forget this grove of trees we found the day of our 9 mile hike in Indiana? I think of you swinging in your hammock at night between the cocoanut trees on your little atoll.

Opie and Bill

gave the rope swing on our beech tree a real workout when they were here in August. They said it was just for old times sake —you know Bill!



Griff and Alice soon after their marriage. He's a Pho. M. I/C now and still delirious over being a Navy photographer. He'll never go back to fixing radios.



This is the first picture

we have of Tommy standing on his own two feet. I had quite a time keeping him standing—he was more interested in trying to get a mouthful of grass.

Your Dad thinks

this picture of you taken 20 years ago is one of the best ever made with his old box camera. Your mother likes it because you were firmly tied to the bank. I like it because it's you. Do you recall your dog's name?





The Camera Club outing turned into a beer picnic. You boys have most of the film and the defense plants have most of the models. Stu Kerr was awarded the film spool for plain and fancy 'mugging'."



Your darkroom shelves have gone to war too, for I needed extra space for canned goods. Imagine reaching for the bromide, but putting your hand on a quart of tomatoes, instead!



All the boys who attended this "Shooting Session" in our basement are in the service now. Monday, Wednesday and Friday finds me hanging up babies' you-know-what from the clothes-line above. I'm glad you sold me on the idea of having an indoor line now."



"Pin-ups on request"

we told Jean. "Whose request, Red's?" She chose this one . . . said you'd understand.

"Home Sweet Home"

is meaningless without you here, so hurry and get that job finished. Prince gets along very well with Tommy. From where you sit the tires on our car look OK—they will get recaps this spring (I hope).





First Christmas for

Tommy was loads of fun and well documented for our album. He was fascinated as usual with Eddie's camera; still is startled by the flash bulbs. He is the most wonderful present of all.

Groovy Decorations

on our bathroom wall still bring chuckles from any visitor who sees them. "Matilda" patiently awaits your return—it's still "service with a smile."



The new equipment

in our living room is, of course, the play pen. We use wood and coal for the fireplace, which contains a fire most every day; the oil burner is on a war time diet. When this picture was made, the radio had gone haywire so I brought the old one down from upstairs. Tommy has a real sense of rhythm.



The Beta Theta Pi campanile may bring back a nostalgic memory of our peaceful little campus. Old Miami U. is still crowded with Sailors, Marines, and Waves. Naval A/C boys are now using the new airfield.

PICTURES to live with

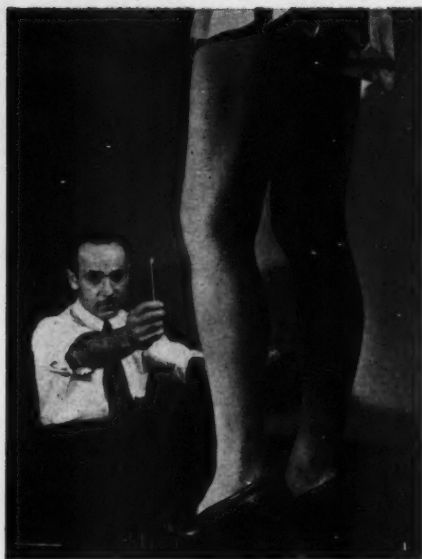
WHAT kind of a picture would you want to live with? Have you given much thought to the qualities that make a photograph endure? You are the judge this time. MINICAM readers may purchase an 11x14 mounted salon print of this scene direct from the maker: Mr. Paul Briol, 114 Garfield Pl., Cincinnati, Ohio. Price, \$5.75 postpaid. MINICAM will publish several pictures a year under the title, "Pictures to Live With". If you care for any of them, order direct from the photographer.



PASTORAL



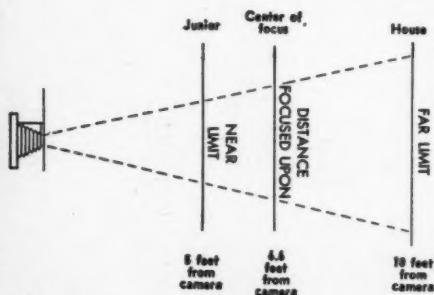
By PAUL BRIOL



By Roy Pinney

JUST as the artist uses a pencil to determine relative dimensions of his model, so must we find a means to calculate the depth of field in our pictures.

The problem in taking this picture was to get the artist and the model in focus. First, we measure the distance to the model and also the distance to the artist. Then by consulting the upper table we find the relative distance on which to focus; by consulting the lower table, we determine the lens aperture that is required.



JUNIOR is 5 feet away, the house is 10, and we want both in focus. By consulting the top table in the chart, we find that the distance to focus on is 6.6 feet. Consulting the lower table in the facing chart, we must close down the lens diaphragm to at least $f/8$ for Camera "A," or at least $f/16$ for Camera "B".

PLAY THE FIELD

PART II

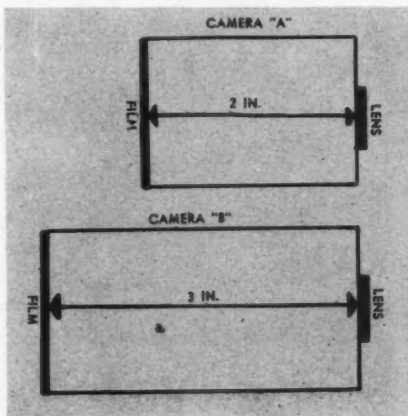
BY RUS ARNOLD

LAST month we considered just how the lens and diaphragm operate to give us greater or lesser depth of field. Since then you've probably been trying it out and by this time you'll want the Depth of Field Tables we promised you. Right face!

Conditions do not always permit following the general rule, which is to focus one-third of the way into the picture, and stop the lens all the way down. For one thing, this frequently requires a much slower shutter speed than lighting conditions permit. Sometimes you can get around this by using a tripod, or flash-bulbs. There are also times when you do not want maximum depth of field; when you **WANT** part of the picture unsharp.

It is wisest to place depth of field exactly where you want it by the use of the Depth of Field Tables. If your camera has a Depth of Field Scale built in, you can use that instead.

"A" is a camera with a 2-inch lens, such as an Argus. **"B"** is a camera with a 3-inch lens, such as a Rolleiflex. When camera **"A"** is focussed on infinity, the distance between the film and the lens is 2 inches; this is the focal length. When camera **"B"** is focussed on infinity, the distance between lens and film is 3 inches; thus we know the Rolleiflex has a 3-inch lens.



DEPTH OF FIELD TABLES

Where To Focus

Here are two tables to help you get everything sharp that you want sharp in your negatives; they can also help you throw anything out of focus, if you want it that way for special effects.

Our first step is to determine where to focus the camera. Let's say we are photographing Junior with an Argus. He is 5 feet away, and should be sharp, as should the house, which is 10 feet away. Run your finger down the left-hand vertical (near distance) column of the top table until you find 5 ft., then run your finger horizontally along this line to the 10 ft. (far distance) column, where you will find the number 6.6, which is the distance at which to focus. Your camera's distance scale may not have that exact number on it, but you can approximate it.

Distances On Which To Focus

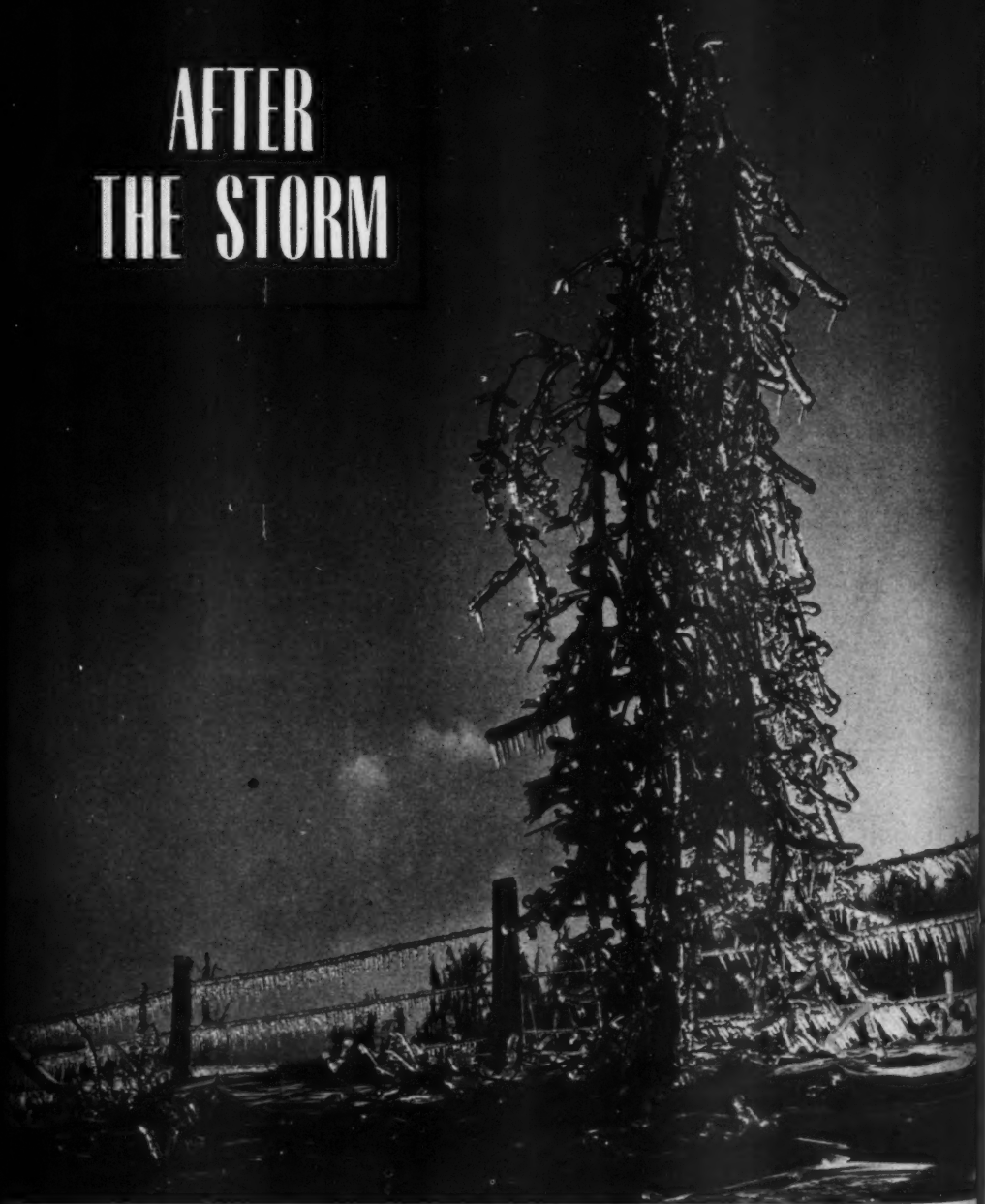
		Far Distances													
		2 ft.	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.	12 ft.	13 ft.	14 ft.	15 ft.
Near Distances (feet)	1.....	1.33	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8					
	2.....		2.4	2.5	2.6	3	3.1	3.2	3.28	3.3	3.3				
	3.....			3.4	3.7	4	4.2	4.4	4.5	4.6	4.7	4.8			
	4.....				4.5	4.8	5.1	5.3	5.5	5.7	5.9	6	6.1		
	5.....					5.5	5.8	6.1	6.4	6.6	6.9	7.1	7.2	7.4	
	6.....						6.5	6.9	7.2	7.5	7.8	8	8.2	8.4	8.6
	7.....							7.5	7.9	8.2	8.6	8.8	9.1	9.3	9.5
	8.....								8.5	8.9	9.3	9.6	9.9	10.2	10.4
	9.....									9.5	9.9	10.3	10.6	11	11.2
	10.....										10.5	10.9	11.3	11.7	12
	11.....											11.5	11.9	12.3	12.7
	12.....												12.5	13	13.3
	13.....													13.5	13.9

Having set the camera for the proper distance, we must still determine the largest possible diaphragm stop at which we will get everything sharp that has to be sharp. Turning to the table at bottom of page, run your finger down the left hand column to the 5 ft. line, and across to the 10 ft. column. Here you find that for your Argus 2-inch lens you must stop down to at least f/8 and select the proper shutter speed for correct exposure. If it is a bright day, you can, of course, stop down more to keep from over-exposing. For 3-inch lenses, such as you find on Rolleiflexes, you would (see bottom table) stop down to f/16. For larger cameras, such as 9x12 cm. film pack cameras and 4x5 or 3 1/4 x 4 1/4 Speed Graphics, you would stop down to f/32. This is the setting recommended for 6-inch lenses, but can be used for 5, 5 1/4 or 5 1/2-inch lenses.

Aperture To Use

	Lens focal length	Farthest distances in feet														
		2 ft.	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.	12 ft.	13 ft.	14 ft.	15 ft.	
1 ft.	2 in.	f32 f45	f64													
	3 in.															
2 ft.	2 in.		f16 f25 f50	f22 f32 f64	f28 f45	f32 f45	f32 f45	f32								
	3 in.															
3 ft.	2 in.			f7 f11 f22	f11 f16 f32	f16 f22 f45	f16 f25 f50	f18 f32 f64	f20 f32 f64	f22 f32 f64	f22 f32 f64	f22 f32 f64	f22 f32 f64	f25 f32 f64	f25 f35	
	3 in.															
4 ft.	2 in.				f4.5 f7 f16	f7 f11 f22	f9 f14 f25	f11 f16 f32	f12 f22 f45	f16 f22 f45	f16 f22 f45	f16 f22 f45	f16 f22 f45	f16 f32 f64	f16 f32 f64	
	3 in.															
5 ft.	2 in.					f7 f11 f22	f6.3 f8 f16	f7 f11 f22	f8 f12 f25	f8 f16 f32	f11 f16 f32	f11 f16 f32	f11 f16 f32	f11 f18 f36	f11 f18 f36	
	3 in.															
6 ft.	2 in.						f2 f3 f6	f4 f5.6 f11	f5 f9 f16	f6.3 f9 f18	f7 f11 f22	f8 f11 f22	f8 f12 f25	f8 f16 f32	f9 f16 f32	
	3 in.															
7 ft.	2 in.							f1.5 f2 f4.5	f2.8 f4.5 f9	f4 f5.6 f11	f5 f9 f16	f5.6 f9 f16	f5.6 f9 f18	f6.3 f9 f18	f7 f11 f22	
	3 in.															
8 ft.	2 in.									f2.5 f3.5 f7	f3 f4.5 f9	f3.5 f5.6 f11	f4 f6 f12	f5 f8 f16	f5.6 f8 f16	
	3 in.															
9 ft.	2 in.										f2 f2.8 f5.6	f2.5 f4 f8	f2.8 f4.5 f9	f3.5 f5 f11	f4 f5.6 f11	
	3 in.															
10 ft.	2 in.												f2 f3 f6	f2.5 f4 f8	f2.8 f4.5 f9	
	3 in.															
11 ft.	2 in.													f1.6 f2.5 f5	f2 f3 f6	
	3 in.															
12 ft.	2 in.														f1.5 f2.5 f4.5	
	3 in.															

AFTER THE STORM





By **JAMES H. THOMAS, A.P.S.A.**

"WHEN WINTER COMES" . . . the sun highlights ice-coated trees and bushes surrounding an old weather-beaten farm house.

IT HAD been a beautiful winter day; sunny, mild and altogether pleasing, when, toward evening, the Storm Gods gathered. Perhaps they had looked at other parts of this war-torn world and decided that some of us were having too easy a time. Before breakfast they concocted an unholy mess of rain, hail, sleet, snow and wind; adjusted the temperature to slightly below freezing, and dumped the whole business on our unsuspecting heads. When every outdoor object had been sufficiently coated with ice, they dropped the temperature still more, stepped up the wind velocity and sat back to enjoy the mischief.

Results were devastating. The coating of ice pulled down poles and wires; disrupted telephone and electric services,

leaving thousands of people without heat, light or telephone service; destroyed century-old trees; ruined orchards; demoralized traffic, and raised the devil in general. Truly, a very successful joke on us Humans.

The ill winds brought in with them some dramatic and beautiful scenes amid the general desolation. Every tree, from massive trunk to tiniest twig, bore its load of ice and every fence wire and weed was encased in a glassy shell. When the sun made its infrequent appearance, the entire world seemed to have been dipped in molten, glistening glass. What camera could remain inactive in its case and what photographer could cling to the warmth of his car even though the temperature was about Zero and the wind

cut through one like a knife?

Some types of equipment are better than others for snow and ice photography and some modifications in exposure and processing of films are desirable. For instance, the camera should be of the rigid or metal bellows type. The fabric or leather bellows of some cameras is sometimes apt to be pushed in by the wind just at the right—or wrong—moment to cut off an important part of one of our pictures.

A sunshade for the lens is required as there are many bright surfaces in snow and ice scenes reflecting light toward the lens from many directions and, to get crisp, sparkling negatives, it is necessary to shield the lens from those coming from outside the picture area.

A filter, preferably medium yellow, is also usually required. The texture and form of ice and snow is revealed by the shadows cast by the irregularities in the surface and even by the shadows of the tiny grains and flakes on the surface. These shadows contain much blue light reflected from the sky and, to accentuate these shadows, we must hold back this blue light by using a filter of a color complementary to blue. A light yellow filter will accomplish this to a certain extent, medium yellow being better under most conditions, while orange and red filters over-accentuate the shadows and produce extreme effects.

Another desirable item of equipment is a reliable exposure meter, as light from sunlit snow is unbelievably bright and may frequently be misjudged even by experienced eyes. Correct exposure is important in capturing subtle and delicate textures of ice and snow.

There is one other desirable element for snow and ice photography which we cannot carry with us. As shadows are necessary to give form and texture, it follows that we should have sunshine. Look at an expanse of snow on a dull, overcast day. Notice how grayish-white, flat and uninteresting it is compared with the brilliant, sparkling surface of varying tones which we see when it is sunlit. Also

notice how much more sparkle and texture is apparent when the scene is cross-lighted, or back-lighted, placing the shadow side of the snow and ice particles toward us, rather than away from us.

No tripod has been mentioned and this is not an oversight. The light from sunlit snow and ice is usually so brilliant that exposures at less than 1/100 second are unusual even with slow film and a small lens aperture. A tripod, to be of real use, should be heavy and rigid enough to withstand vibration caused by the wind. Usually, a tripod of this kind is too heavy and bulky to carry through the snow drifts and over the sometimes insecure footing encountered in this type of photography, especially as it is rarely, if ever, required.

Keeping equipment simple and uncomplicated is important as cold fingers are apt to drop loose pieces of equipment in a snow bank where they may remain hidden.

With medium speed, fine grain film, such as Plus X or Superpan Supreme, in the camera; sunshade and medium yellow filter securely mounted on the lens, and the exposure meter in a convenient pocket of our warm clothing, we are ready to start "shooting."

Here ahead of us, a small, unpainted farm house perches on the crest of a hill between groups of trees encrusted with ice and snow. The sky beyond is filled with angry looking clouds which promise more snow to come. The sun is on our left giving a good cross-light to the scene. The effect is cold, lonesome and forbidding with no sign of life anywhere.

Now to determine the exposure. The scene is one of great contrast. The snow, the ice-covered weeds and trees are brilliant in the slanting rays of the sun. The house itself and other dark objects reflect very little light. The temptation is to expose for the dark objects and underdevelop the negative to prevent blocking the highlights; or perhaps to select an average exposure midway between that called for by the darkest part and that called for by the lightest part of the scene

THIS STURDY TREE was no match for its coating of ice . . . graceful branches will never again arch skyward.

IRVING B. LINCOLN'S picture below was made above timberline on Mt. Hood. "The wild wind's masonry decorates trees with flags of frozen snow, unfurled into the wind, leaving the lee side practically bare. This snow-ice is carved by nature's fierce artificer into marvelous statues of graceful beauty or bent into goofy, grotesque shapes."



and then use normal development. Neither method would be apt to give us the results we are after. Over-exposure of snow and ice will generally fail to capture the many tones and gradations in our picture. Furthermore, as under-development decreases the contrast of the negative as a whole, it also decreases the contrast of that portion containing our snow and ice and that is exactly the opposite of what we want.

We do hope to capture in our negative all the subtle shades which our eyes see in this scene so that the snow will look like snow and the ice will look like ice in our final picture. We must keep in mind that this picture is primarily a *snow scene* and not a picture of a comparatively dark farm house. Detail in the farm house and in other dark objects is of secondary importance to detail and tones in the snow and ice. While the contrast in our scene as a whole may be great, the contrast in the snow and ice itself is within a very narrow range and should not be compressed as is the case if the negative is seriously over-exposed or under-exposed. So, to give the best separation to these snow and ice tones, we should expose to place them on the so-called "straight line" portion of the characteristic curve of our film.

To accomplish this, we take a meter reading on the sunlit area in the foreground, aiming the meter downward at a point about ten or fifteen feet in front of us. As the "light acceptance angle" of our Weston meter is only about thirty degrees, no light reaches it except from the snow covered surface at which it is directed. The needle goes 'way up to 1600. At first thought, this might seem to be the method of basing exposures by readings on the highlights requiring other than a "normal" setting of the meter. But this is not so in this case. What we have read with our meter is the *average* brightness of the snow surface before us.

Setting our meter normally, our reading of 1600, at our emulsion speed of 50 Weston, calls for 1/100 second at f32.

We use one stop larger aperture to compensate for the K 2 filter and expose at 1/100 second at f22. Even with the shadow area in the foreground in which we must get detail, there is sufficient latitude in present day films so that we could have safely doubled or even tripled the exposure and still retained good separation in the snow and ice tones. In this picture, however, the dark objects are sufficiently far from the camera that detail in them is of little importance.

With that particular picture safely tucked away inside the camera (we hope), we start on down the road. Ice-laden trees lining the road ahead intrigue us; here are trees flattened almost to the ground; a farm yard locked in winter's grasp; snow plastered farm buildings; whipped cream snow drifts; a telephone cable sagging in a graceful curve under hundreds of pounds of accumulated ice. Pictures everywhere!

THE sun went down all too soon and sent us to the darkroom to develop the film and see what we had. Properly exposed negatives of snow and ice scenes are usually improved by some over-development up to fifteen or twenty percent. This increases the contrast and gives us better tonal separation and, while over-development will not correct under-exposure, it will tend to build up some detail in dark objects in the scene which have been somewhat under-exposed.

A "fine grain" developer should be used, especially if enlargements are to be made, as the fine detail of snow texture may be entirely lost if much grain shows.

Inspection of the processed negatives shows that the dark objects in the scenes are pretty thin. A set of 5x7 test prints indicates just what areas require "holding back" during printing as well as how the pictures may be improved by cropping, printing-in and flashing.

For the excessively thin or under-exposed areas, especially where they are of odd shapes or too small or too numerous to permit manual dodging, a solution of

DESIGN FOR VICTORY

BY GUSTAV ANDERSON



New Coccine applied to the reverse or shiny side of the negative is an excellent means of print control. New Coccine, which is a water-soluble red dye available in powdered form, should be applied very sparingly. The printing density of the thin areas is built up gradually to produce the desired result. A finely pointed brush is used for small areas, lines, etc., and a small tuft of cotton for larger areas. While this dye can be partially or, if desired, entirely removed from the negative by washing, it is well to experiment a bit on an unimportant negative to learn the proper method of application and amounts of dye to be applied.

In making our prints, choice of the proper contrast grade of paper is important. Freshly fallen snow is neither pure white nor is it muddy looking. There are some tones everywhere, even in many of the lightest highlights, although these may be so brilliant that they appear to be pure white. Too soft a paper will give us muddy tones and loss of highlight

brilliancy while too hard a paper will lose the highlight tones and the "luminosity" of the shadows. Carefully made test strips will indicate which grade of paper gives the most satisfactory results.

Prints pulled from the developer before development is complete, as well as those forced by over-long immersion in the developer, cannot have the subtle tones and shadings required. Need we mention developer temperature? Most well-balanced developers are well-balanced only near the recommended working temperature.

After the prints have been made, some additional modifications of the tones may be found necessary such as brightening up highlights here and there by use of *weak* Farmer's Reducer on the dry print or with *very weak* Farmer's Reducer on a wet print which has been carefully blotted to remove all water from the surface. This must be done very carefully as the tones of the snow and ice are very delicate and even slight over-reduction

(Continued to page 84, please)



WILLIAM FISHER, proprietor of the 8th Street Art School, takes brush wielding amateurs to picturesque settings along the New Jersey water front. In the group are men and women from every walk of life, from 18 to 50. This photography by Ralph Crane, is a "controlled" candid shot. The neatly hung coat, the ancient scythe, and the barrel for a chair, key up the picture to its thesis of a business man out for an art holiday.

IT WAS some twelve years ago that with a Leica in my pocket I gate-crashed the inner sanctums of a French presidential election at Versailles and snapped photographs of excited MP's eating, drinking, and gesticulating in an atmosphere heavy with intrigues of electioneering. They were to decide whether Aristide Briand, the champion of World Peace, or a colorless correct gentleman should become President of the Republic. The correct gentleman, Paul Doumer, won*.

* Assassinated a few months later by a maniac.

Such "exclusive" scoops generally established the author in those days as a "candid camera man," a photographic intruder into private lives of celebrities.

Candid photography means more than just an opportunity to photograph a subject the way he does not want to be photographed, by exposing pettiness or recording facial distortion.

It should be an attempt on exploring human nature and character as a whole with the camera. Instead of discovering distortions (no matter how funny) one should try to discover truth (no matter

Candid or Trash...?

BY LUCIEN AIGNER

A GENUINE CANDID camera shot of a diplomatic conference at the "Quai D'Orsay," French foreign office. Around a 17th century gilt drum table, four French cabinet ministers and Anthony Eden of England, smoked, drank tea and sparred for the coming struggle for power. With all the shooting and snatching going on, diplomats live charmed lives, though they play for the highest stakes of all. The common man looks at them and ponders: "Which of these men are for me?" Left to right: Leger, Laval, Eden, Pietry and Bèrenger.





ONE OF THE first photographs of an amateur, John G. Kasten, R.F.D. No. 1, Schenectady, New York, this "controlled" candid camera shot was used by Mr. Kasten in his 1943 photographic Christmas card. The children were given the general idea, lights and a tripod were set up, two chocolate bars, and a movie promised as a "reward" if they "really tried" and pop snapped away for dear life as fast as he could wind the shutter.

how plain) in pictorial form.

The arrival of the age of "candid camera" meant the happy discovery that people need not "pose" for being photographed. One spontaneous expression was worth thousands of idealized portraits, in which the retoucher killed the last human touch that both photographer and model had overlooked in the studio.

We sacrificed technical standards to dramatic values and sharpness to "expression" or "action." Our subjects felt grateful for sparing them the tortures of picture

taking and they granted us unusual opportunities for exclusive "scoops" just because we did not look like traditional photographers. They accepted our presence with indulgence, in situations, from which until then photographers had been excluded. They were amused to discover from our casual photographic records they were human beings after all.

There were soon too many pictures on the market, showing cabinet ministers and other celebrities scratching their heads, blowing their noses, struggling with



TRY A "controlled" candid shot yourself. First create the idea, then imbue your subjects with it. Lou Gardner, of Detroit, got his start on this picture of the big sister comforting her young brother over a let-down report card when the bright-boy-at-the-Gardner's didn't come home for dinner the day report cards were issued. Lou says it's all right now.



HOT STUFF

By Skippy Adelman

Whatever a candid has got, it certainly isn't pictorial; but authenticity and the life force of human beings count, too. It was really hot that day in August at Tompkins Square in the Lower East Side at a C.I.O. rally. Standing left to right you will note man wiping head band, cop moping face, man squinting through glare at speaker, woman shielding eyes from sun with hand bag. Seated, boy removing Basque shirt, and an old woman protecting her head with a kerchief. If an advertising agency did this in a studio how different, O how different it would be.

rebellious macaroni strings at the dinner table, or mouths wide open while making speeches; there were too many state dignitaries laughing at funerals, too many generals making eyes at pretty actresses while inspecting parades.

We were no more satisfied with what life had to offer; with lighting as we found it, or subjects as luck brought them across our path.

So we decided to improve life, technical conditions as well as the subject. Instead of waiting for things to happen, we went ahead to produce them.

Thus "controlled candid photography" was born (or reborn).

IT IS too true that there are quite a number of candid subjects over which

the photographer will have no control. There will be scenes or expressions which he can not produce or re-produce. They will be unique in their kind, they will happen under good or bad light conditions and will happen so rapidly that he will have to shoot them good or bad as they come.

But there will be other instances, other revealing scenes, which the photographer may anticipate in his mind, and still others which will not happen unless the photographer *helps* them to happen.

Such instances will be the subjects of "controlled" or planned candid photography.

The whole difference is in the emphasis; the creative effort or the reliance on the miracle to happen . . .



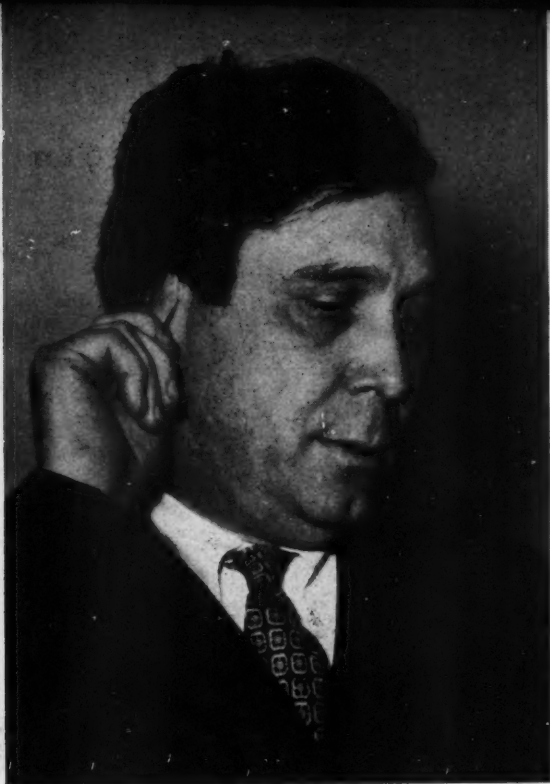
WILLIAM SAROYAN, playwright, stands in the aisle of a theater where one of his plays is in rehearsal. He is asking God to strike somebody dead.

The new type of photographer I am talking about, creates his pictures in his mind before he creates them in flesh and blood in front of his camera.

Let's go in the field. To shoot a "controlled" candid, create the picture in your mind and start working it out in flesh and blood. Tell your subjects about your idea and try to obtain suggestions from them.

Then you place your subjects and invent

a specific action program for them. You have to be specific. It will not do to tell them: "Do something." You have to tell them exactly **WHAT**, perhaps even **HOW** to do it. The action you suggest must of course be in harmony with your subjects' character as well as with the situation. If you suggest some phony action, their faces will look phony. Often I hear my subjects say: "All right, let's pretend



2 Candid by Aigner

"This picture of Wendell Willkie is a good example of what I would rather *not* call candid photography, in the sense of being revealing or important. It is a chance shot, which may produce excellent political campaign material, but which as a picture does not reveal anything about the man except that public figures have uncontrolled physical reactions.

"Yes, you guessed right, Jim Farley did not pose like this for the fun of being photographed. He forgot all about it as he was inspecting a movie-van used in the second Roosevelt election campaign in which he was campaign manager. You know what he thought of the van."

... " No, pretending will not do. They have to be in action instead of acting or pretending. Every detail has to be real. Even words they say to each other.

It is not enough to say: "Please try to forget me and my camera." One must create an interest stronger than oneself and camera. Without such interest, they will always try to peek into your lens, or will just look bored.

If you want surprise to show on faces, you have to surprise your subject. A sudden call from a person other than yourself, toward whom the model turns with that interested glance in his eye which follows such a surprise call, generally does the trick. If a person calling is behind your camera, you will see the eye without its looking in your camera.

It will not do just to talk to your subjects; very much depends on what you are talking about. If you want amusement to show, you have to amuse them; if you want them to look scared, you have to scare them.





STRAIGHT TICKET

By Robin Carson

A LEICA SHOT made by Robin Carson when he roamed the streets of New York seeking to reveal the city and its people as he saw it. Today, Carson is a fashionable portrait photographer.

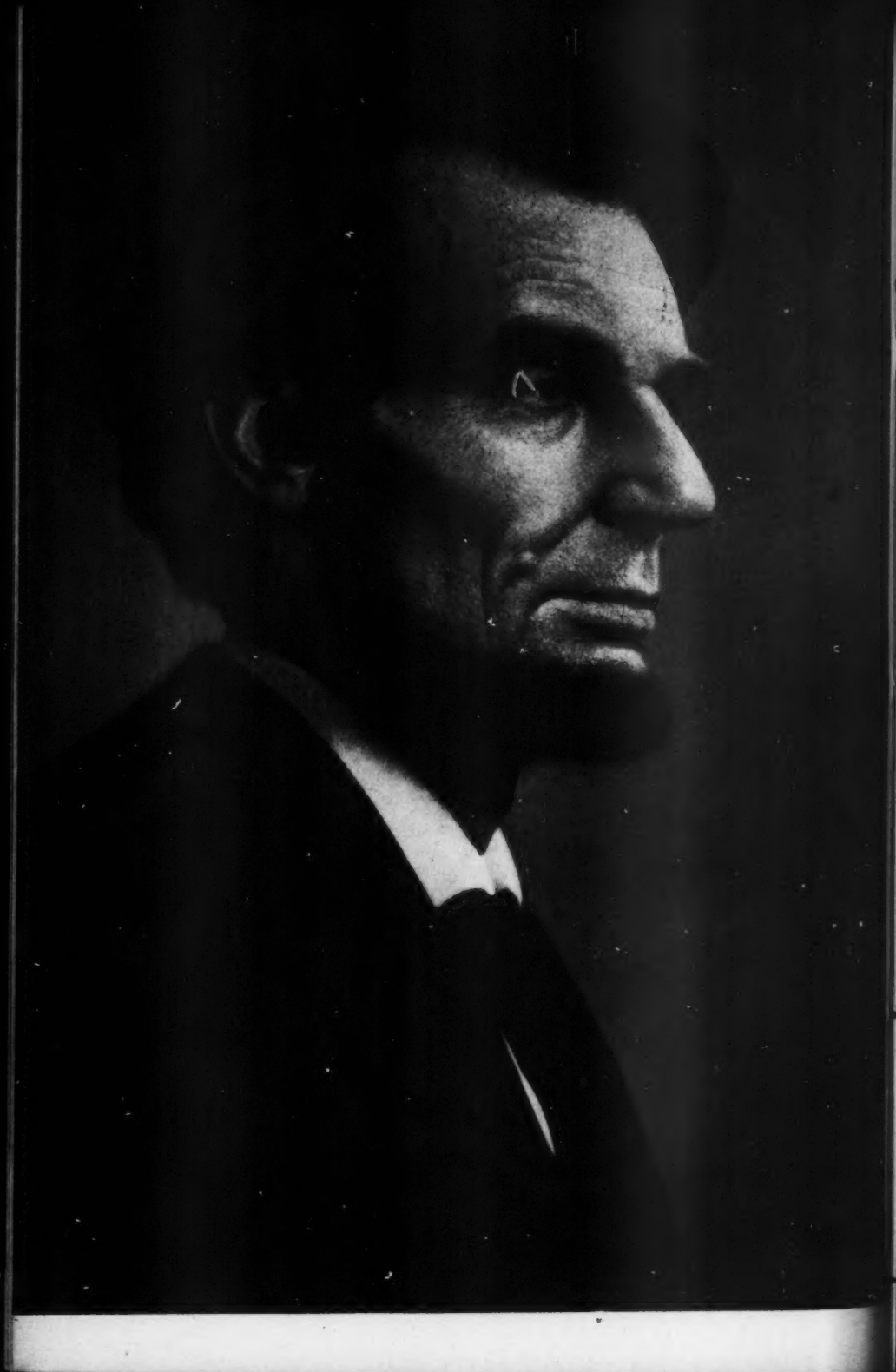
And in all this you have to be flexible. If you had an idea and find it does not work, does not fit the situation or your models, forget about it, no matter how good it looked at home. If your subjects feel your idea is silly, don't try to force it upon them. They will never feel comfortable about it. Even if they try to act it out they will always look silly.

Express your idea or ideas and experiment with them. During the work you often improvise a much better idea than

you had thought of at home. But don't

Hold on to your *basic* idea, your general conception of the thing you are trying to photograph. This is what will make your work creative; the effort to express an idea you have.

And of course during all this work, keep the lights set, your finger on the release, so that you may press it whenever the rare moment flares up; the picture of a candid situation.



I SHOT "LINCOLN"

By HARRY SHIGETA

ONE day a few years ago, lunching with a very dear friend of mine, I suddenly noticed in his facial structure a remarkable resemblance to that of Lincoln. I mentioned this and he acknowledged that it was not the first time he had heard this remark. I asked him if he would consent to pose and impersonate the great Emancipator for my camera studies. He readily agreed to do so.

Luckily we have in the Chicago Historical Society a plastic mask of Lincoln taken from life by Leonard Volk, a sculptor, when Mr. Lincoln was still smooth-shaven. I obtained photographic


reproductions of this mask in both profile and frontal views.

When my friend's hair grew sufficiently long, we went to work. The make-up was applied carefully, using the aforementioned mask as the basis, remodeling the nose, chin, forehead, and adding a mole.

Fortunately, a local costumer was also a student of Lincoln as a hobby of his own and he helped us to a great extent by furnishing costumes and accessories of the vintage of 1860.

Some of my theatre friends thought well enough of the photographs to tell me they looked "like Massey himself."





ENLARGING TECHNIQUE

By PERCIVAL WILDE

FOR several reasons Figure 1 is unique. It shows one of the least expensive and most useful of enlarging accessories, yet I have found it in only one darkroom: my own. On the left, in the illustration, is a foot of glass tubing. On the right is a piece of fur. In cold weather when the tube is rubbed with the fur, the tube becomes charged with static electricity. Do I hear a voice remark, "We know that. What next?" Next the tube is passed lightly over both sides of the negative we wish to use, and presto, whatever dust, visible or invisible, happens to be clinging to the negative, obligingly leaves it and flies to the tube. Were the dust allowed to remain, each particle would cause a white spot on the enlargement. Indeed, when the air in the darkroom is dry and chilly it is difficult to remove dust by brushing, for brushing electrifies the negative itself, and causes still more dust to fly to it. The glass tube does the trick, and if the reader is too far from the five-and-ten cent store to buy a glass towel bar there, he may use a hard rubber rod or a

large stick of sealing-wax, and if he cannot find a discarded bit of fur, a square of silk will answer as well.

Focusing the negative is the next problem. Focusing the comparatively weak image projected by the enlarger is difficult when other lights are on. We may therefore choose between turning them off manually every time we turn the enlarger on—and on again every time we turn the enlarger off—which is annoying, to put it mildly, or we may adopt a wiring system which makes the procedure automatic. The sketch shows the plan which is used in my darkroom. The feed line goes first to a three-way toggle switch (cost, including steel box and cover, about 60 cents). From there one circuit runs to the enlarging machine; a second circuit supplies *all* of the other light outlets in the room. When the switch is in its normal position, the machine is off and such safelights as are required are burning. When the switch is thrown, the machine is on but all other lights are off. Not only does focusing become easier, but we are unlikely to

leave the darkroom while the enlarger is on, an advantage which is real. One of my friends writes me of a photographic tragedy which caused him much distress. He was called to the telephone while making an enlargement, and upon returning, fifteen minutes later, he discovered that one of his most cherished negatives had been effectively cremated. That could not have occurred in my darkroom, for I cannot turn on any light without cutting off the enlarger, and even in an emergency I would not leave while the condition of the lights warned me of danger.

A second enlarger control, wired to throw a resistance into the circuit, is a god-send if we have occasion to make projections on high-speed film instead of on bromide paper. The enlarging lamp may be made to burn at a predetermined small fraction of its normal strength. The lighter lines in the wiring diagram show how this is accomplished in my own darkroom, all of the wiring being carried by BX cable, with all outlets and switches in steel boxes. Either of the two toggle-switches may be used separately: the first turns on the enlarging lamp at full strength; the second turns it on at exactly one-quarter power. When either switch is thrown, all other lights are extinguished.

A radiant heater, with a central cone in a burnished reflector, will be found an excellent resistance, for its coil of nichrome wire may be shortened easily if necessary. Since the current passes through both the enlarging lamp and the heater, the latter never heats perceptibly and never glows. Figure 3 shows my own set-up. For the sake of the illustration, the heater has been placed on the enlarging table: its usual place is under it. For the sake of safety the heating element remains in its original socket.

Even when the safelights are out, focusing may sometimes be difficult. A cloud negative, for instance, may seem to be correctly focused when it is actually far out. Despite the manufacturers, who offer several excellent devices by which a projected image may be studied more conveniently or may be magnified so that focusing be-

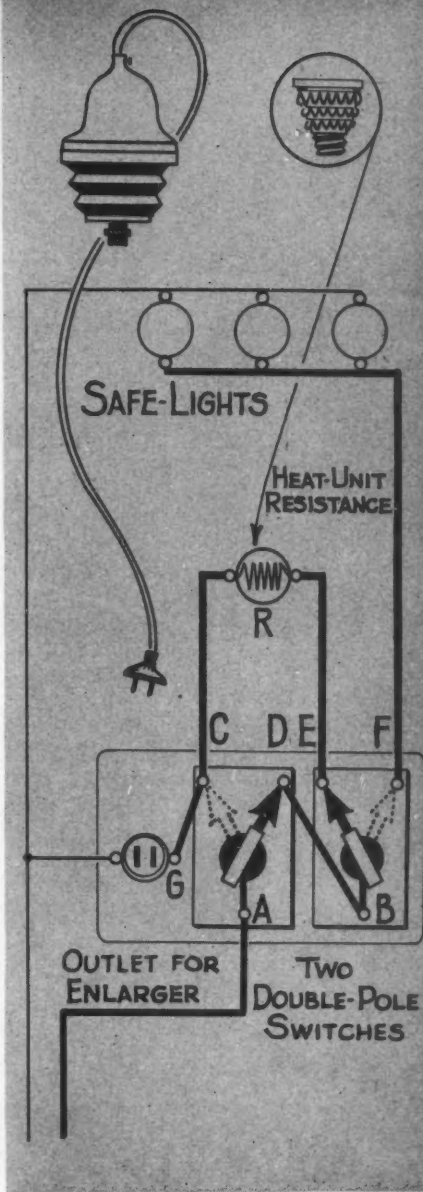


Fig. 2

Diagram by Francis G. Russell

comes more precise, I prefer a gadget which originated in my own darkroom more than ten years ago, and which is being offered as stock equipment with at least one enlarging machine at present. If we can project printed matter, or printed



FIG. 3—A radiant heater wired into the circuit makes an excellent resistance; the enlarging lamp may be made to burn at a small fraction of its normal strength. **FIG. 4** (right)—An inexpensive transparent ruler mounted in an extra negative carrier makes an efficient focusing device.

numbers placed on a transparent material, it follows that we shall be dealing with lines and shapes which will be sharply defined when perfectly focused—and only then—and if we are using as little as two or three diameters of magnification, the printed characters will show serrated edges, which can be focused with great precision. The printing is dead black. The transparent material is colorless. The extreme contrast will be helpful. What, therefore, could be simpler than to project the image of a transparent ruler, framing it as if it were a negative, and making sure that the focal planes agree by placing it in an exact duplicate of our usual negative-carrier?

Figure 4 shows my original device: an extra carrier in which a celluloid ruler is permanently mounted. A cheap ruler, it should be mentioned, is preferable to a costly one. With both, the printing is on the inside of a sandwich made by laminating together two celluloid sheets, but the

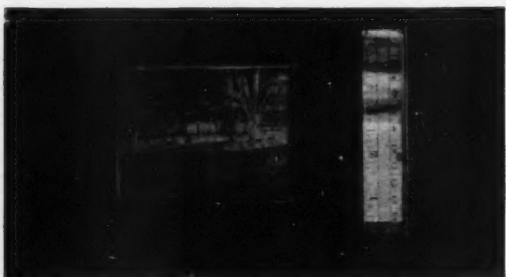
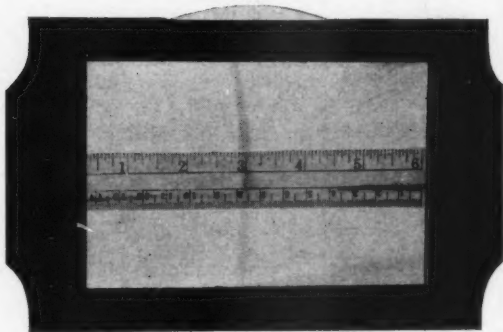


FIG. 5—A homemade negative carrier allows for first determining the composition, then sliding the carrier along for exact focus, finally returning to the center for the exposure.

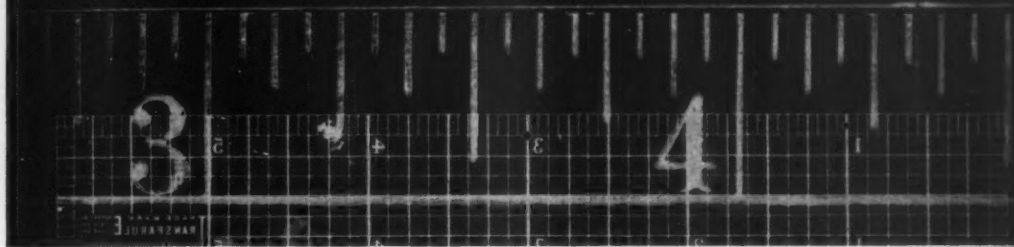


FIG. 6—Did you ever have trouble focusing soft fleecy clouds? A transparent ruler placed next to the negative solves your problem and also gives the degree of magnification.

thickness of my 5-cent ruler is only 0.02 inches, while those of my more expensive ones are between 0.027 and 0.04 inches. The plane of the printing on the cheap ruler cannot be more than 0.01 inches above that of the negative itself, and while the difference is so small that it is inconsequential, we can bring the two planes into perfect coincidence, if we are finicky, either by applying a coat of thin paint to the underside of the negative-carrier or by gently sanding the underside of the ruler-carrier. If carriers of the sandwich type are used, then it is easy to select glasses one of which is 0.01 inches thicker than the other, though, as previously stated, the step is not essential.

For years I used the device illustrated, first adjusting for size and rough focus with the negative itself, then for precision with the ruler in the second carrier. Then the local carpenter built me the carrier shown in Figure 5, which holds both negative and ruler at the same time, and which is so dimensioned that when the negative is centered, no stray light passes through

the long narrow slot. Now focusing has become a matter of the utmost ease and certainty: with the negative positioned, the machine is adjusted for the area and the composition required; the carrier is then pushed in a little further, and an exact focus is obtained; finally the negative is returned to the center for the picture. Because of the intentional dimensioning of the carrier, which makes it impossible to project the negative and the ruler simultaneously, no such illustration can be offered; but Figure 6, made by placing a ruler next to a cloud negative may indicate how successfully a really difficult focusing operation may be performed.

It will doubtless have occurred to the reader that the expedient of projecting a ruler allows the magnifications to be read off and recorded, so that we may duplicate a given print at any future time without resorting to experimentation. We have but to measure the image of one inch or one centimeter, as projected, with a second ruler. The reading tells us the number of magnifications directly.



IN THE STILLNESS OF THE NIGHT...

BY HOBART V. ROBERTS A.P.S.A.

MY WIFE'S folks had a studio and she assisted in the days of daylight printing. Seeing an opportunity to escape, she leaped from the frying pan into the fire, for when our first child was born I started right in taking pictures of the baby.

Before my marriage I used to camp out a lot at South Lake in the Adirondacks, fishing and hunting. It was legal then to jack for deer at night with a light on the bow of a boat to keep the deer from seeing the boat and making it possible for one to see the deer. Some hunters used a candle with a tin can for a reflector for their light; others a lantern, as this was before the days of electric flashlights. The hunter would sit in the bow and the paddler, of course, in the stern. At night we were able to work up to within six or eight rods of game. When hunters shot wild and missed from excitement, it was called a case of buck-fever and when they hit their mark, it meant venison in camp.

The thought came to me—why not photograph them using flash powder for light and perpetuate the scene on film and forego the stew. In 1907, Antone Louer, my companion for years, helped me to set up our outfit.

Our 4A Kodak was placed on a tripod firmly fastened just behind the bow of our rowboat and a support holding our Eastman flashtray was fixed just to the right and above the Kodak. A cap was used to ignite the 1/6 of an ounce of flash powder.

It seems almost like last night that we rowed to the foot of the lake on a July night when there was no moon. Darkness is paramount in this work, otherwise, the deer would bound away regardless of our jack.

It was nearly dark when we reached a little narrows connecting the lake to a little beaver meadow or pond, where deer come to feed on lily pads, roots, etc. We waited outside the meadow until it was pitch dark, busily fighting small mosquitoes in the meantime.

The equipment was all set, the jack lit


and the powder and cap ready to go off when the releasing chain was pulled. Antone settled himself on the front seat within reach of the chain. I grasped the paddle and shoved off. The shutter on our Kodak was open ready for action, diaphragmed down to between F. 11 and 16, which would give us good depth of field and would also help to keep our film from fogging before the exposure was made.

The rays of the light brightened the objects before us as we glided silently through the narrows into the meadow. Owls and muskrats tried to distract our attention, but our mind was on the splashing deer ahead.

We were following a channel that would soon lead us to the center of the pond. We were just on the first bend when out from the darkness waded a doe, followed by a big spike horned buck. It was a magnificent sight, perhaps the most realistic nature study that I ever beheld under a light. We were too close to fire as our Kodak was focused for 25 feet, so I quickly back paddled a few feet. The doe was picking her way through the soft muck just as the buck spotted our jacklight. I whispered to Antone to fire. I never knew which deer reached shore first after that bang as it was a free-for-all, there being other deer along the water's edge.

After taking that picture, we sought the cover of a ledge of rocks close by and waited to see what would happen next. Of course we turned our film and reloaded and were again all set when we heard a deer splashing its way down the creek towards us. I was ready to meet it half way and as the water became shallow, pushed the boat carefully along until we could see the light colored body and luminous eyes. A bend or two in the creek and we were close enough, just as our boat grated a trifle on a rock. That was enough—up came the head of the feeding deer—a beautiful pose of a striking buck.

In a flash, "In The Stillness of the Night" was perpetuated on film as the



LONG BEFORE flash bulbs were invented Hobart V. Roberts of Utica, N. Y., was experimenting with flash powder in stalking wild game. This thrilling activity began in 1907 when he and Antone Louer rigged up their first equipment. Roberts' 4A Kodak, on a firmly anchored tripod, was placed just behind the bow of the rowboat. A support holding the flashtray was fixed a little to the right and above the camera. A cap ignited the 1/6th of an ounce of flash powder. This composite picture (above) shows the light used on the front of the boat to help navigate the shoreline and to distinguish the game from the inky blackness. Roberts is in the bow of the boat at the camera, Brayton Clark with paddle. Patience, stealth, skillful paddling, and watchful timing of the open flash helped create an adventurous form of sport and a long series of outstanding nature pictures. Roberts found the three raccoons (below) a few steps from his camp.





IN THE SILENCE OF THE WILDERNESS

frightened buck made great leaps for cover. Once safe he serenaded us with the snorts of his displeasure.

Anxious to see the results of our experiment, we rowed back to camp and developed our film. We found that the doe had moved her head a little when our first flash was fired. This ruined the picture of course, as both boat and deer have to be still when an unsynchronized flash is fired.

Our second picture was a master piece—beginners luck—for little did we realize when that flash was fired that we were making a picture "In The Stillness of the Night" that would be hung in Salons to be viewed by thousands both here and abroad.

Years later when synchronization of lamp and shutter was available, I planned a trip to Little Woodhull Lake, an ideal spot for action pictures. Accompanied by Dell Bellinger, my guide, and a friend Brayton Clark, we left South Lake with our duck boat, canoe, provisions, equipment, etc., loaded on a lumber wagon. After going about two and a half miles, we crossed the dam at North Lake and were soon at the Little Woodhull Trail.

The team managed to get the wagon over three miles of the way. The other mile was a carry for everything we had, but we made it and arrived by the lake at a spot that was to be our camp site. After getting things ship-shape, we furtively studied the feeding deer as they came down to the lake in daylight. It was night pictures we were after so we patiently waited for the sun to set.

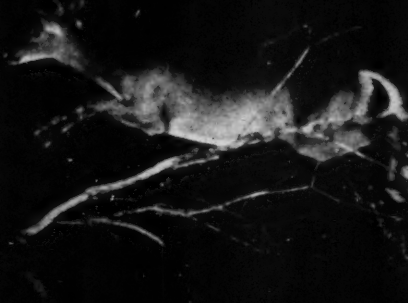
Brayton was to do the paddling for I wanted to manipulate the buttons that set off the flashes. Our two Nesbit flash lamps were synchronized with the shutters on our two 5 x 7 cameras firmly anchored on a platform in the bow of our duck boat. Four foot releases reached from the lamps supported on uprights to the set shutters. Two pill boxes, each filled with three-fourths of an ounce of normal grade powder, were on each lamp. These were paraffined after a Dupont fuse or squib had been inserted. The leads from the squibs were connected to wires leading to a dry cell battery and then on to the buttons.

On this trip we took "A Leap In the Dark" (next page). To me this is the most fascinating of any of my pictures and has won medals in wild life competition.





A LEAP IN THE DARK



THE STAG AT EVE

(Continued from page 49)

You may be curious about how this picture was taken. After darkness descended, we were soon on our way to a deer-crossing, a sandbar covered with about a foot of water at the foot of the lake, where we hoped to get a deer jumping. All was quiet as Brayton paddled silently. As usual, the rays of our light brightened the lily pads and objects ahead and it seemed as though the shore line and stumps were approaching us rather than that we were passing them as we kept steadily on.

Four thousand bullfrogs welcomed us in chorus as we struck the deer tongue. There was a bedlam for about thirty seconds, then all was quiet as a mouse for about thirty more. Automatically this kept up, off again, on again and gone again when we reached the open water.

Luck was with us as we neared the bar, for there was a buck slowly making his way along in the shallow water. I grasped the push buttons, one for a still and the other for a jump. Quickly we closed in to get our right distance, but the deer

didn't seem alarmed by the jack that had turned night into day and I pushed the first button. As the light blinded us, the recoil of the lamp had tripped the shutter on our first camera which had a 4.5 lens wide open, the shutter set at 1/200.

I could hear the deer whirling in the water and let the second flash go for the jump, the same procedure, except that this camera had a 3.5 lens wide open and was set at 1/300 of a second.

We didn't see the buck again until we developed the plate the next morning by the aid of a changing bag and plate tank. When we did, we will leave it to you to imagine our feelings, if, of course, you have seen "A Leap In the Dark" on pages 50-1.

As a lover of wild life photography, I have taken daylight pictures of loons, gulls, etc. and have tried out flash bulbs on coons and deer at night at short ranges. Maybe I will try flash bulbs in jacking for pictures some time in the future, but if I were after a jump, I believe I would still use flash powder.



FIG. 1

THE discovery that a picture could be given a short exposure and then have its latent image developed into a permanent visible image started the ball rolling. The actual discovery, usually attributed to Daguerre, took place under dramatic circumstances. Daguerre placed an exposed silver plate in a cupboard, and the next morning he found he had a fully developed picture. Later on he found that Mercury fumes were responsible for the development of his latent image into a visible picture. This became the first practical developer.

Since then photographers have been exposed to every possible type of formula that the photographic portion of the brain of man can conceive. Some of these concoctions are logical and practical, but many are pure nonsense.

The purpose of any developer is to develop the latent image. In almost every instance it does this by reducing to silver any grains of silver bromide which have been touched by light. Essentially there is little difference between paper and film developers. Paper developers are usually more active and a bit more concentrated than film developers, so if a paper developer is used for film we can expect increased contrast. Vice versa, fine grain developers designed for film will not work when applied to prints. Therefore developers should be used only for the purpose for which they were designed.

Almost all developers contain certain basic substances and these are:

ANALYZE your developer

BY TRACY DIERS

1. A developing agent. (The chemical that actually does the work.)
2. A preservative. (The substance which prevents the bath from destroying itself.)
3. An accelerator. (The chemical which speeds up the process of development, usually an alkali.)
4. A restrainer. (A retarding chemical which stops the developer from going too far.)

Let us take each of these in turn and observe the effect when working with an experimental developer.

THE DEVELOPING AGENT. Practically all of the developing agents used today are derived in one way or another from coal tar. Some of the more popular ones are Metol, Hydroquinone, Amidol, Glycin, and Paraphenylene Diamene.

The most popular developers in use today are the first two, Metol and Hydroquinone and these are usually used together for reasons that will soon be explained. To understand thoroughly the working of a typical M. Q. developer, as it is called, let's prepare the following solution:

Water	12 ounces
Metol	25 grains

Expose a sheet of printing paper such as Azo under a negative and place it in this solution. If the exposure has been correct, only after a long time will the first signs of a picture begin to appear.



FIG. 2-A
PLACING in a metol bath causes the image to begin to appear, but it takes more than just a developing agent to make a good print.



FIG. 2-B
DEVELOPED in same bath after Sodium Carbonate, an accelerator, was added to cause image to develop in reasonable length of time.



FIG. 3-A
MADE in a developing bath which contained no restrainer. An attempt to get contrast by slightly longer development, resulted in fog.



FIG. 3-B
ADDING the least bit of Bromide results in a good print. The light areas are fog proofed and the print has rich snappy tones.

So far the printing out process seems to have an advantage. Evidently a successful developer needs more than just a developing agent to work.

Interesting things will happen if the least bit of an alkaline substance is added to the solution. Almost immediately the developing agent wakes up and then action occurs. To make this solution alkaline let's add the following chemical:

Sodium Carbonate. .50 grains. (dissolve well.)

Again expose a sheet of printing paper under the same negative and place it in the experimental bath. Almost immediately the latent image on the printing paper starts to develop vigorously. Now we can readily see why this chemical is called the accelerator. Printing papers are coated with a gelatin emulsion and

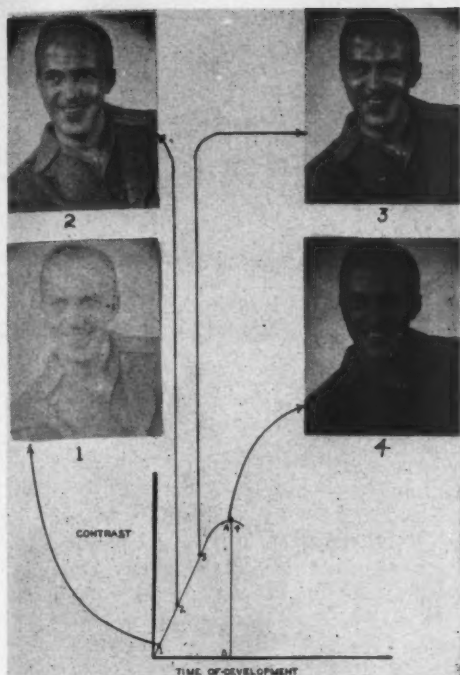


FIG. 4-A

MADE with a simple M. Q. formula containing the normal amount of Potassium Bromide. This was not enough to produce sufficient contrast from this negative on Opal paper. Print No. 4 is beginning to fog, after longer development.

gelatin has a tendency to swell in the presence of an alkaline substance. Of course, when the gelatin swells it allows the Metol to get into its pores and then development begins. Fig. 2.

While this explanation has been taking place, the developer turned brown. The accelerator, while absolutely necessary in the developing bath, caused the developing agent to destroy itself by oxidation and that's the reason for the brown color. Under these conditions it will continue to get darker and thus become worthless. Fig. 1. Now we need some substance which has a greater appetite for oxygen, so much so that it will snatch it away before the developing agent has a chance to get it.

Fortunately there is such a chemical. Sodium Sulphite combines with large

quantities of oxygen and in so doing becomes Sodium Sulphate. While this is happening, the oxygen will not get a chance to get to the developing agent. In this way Sodium Sulphite acts as a preservative. Another experimental developer can now be prepared using this knowledge:

Metol	12 ounces
Sodium Sulphite ...	25 grains
Sodium Carbonate ..	50 grains
Water	12 ounces

Using the same negative let's make another print and place it in this bath. Things occur quite successfully now. The image starts to develop into quite a decent looking print, but another defect becomes apparent after the print is allowed to develop for awhile. The image picks up in density, but keeps right on going

DEVELOPED in an M. Q. formula with an additional amount of Bromide. Note how the time of development has increased, how the contrast of print 4 is now greater without fog and how line AB, the contrast line, is longer than before.

FIG. 4-B

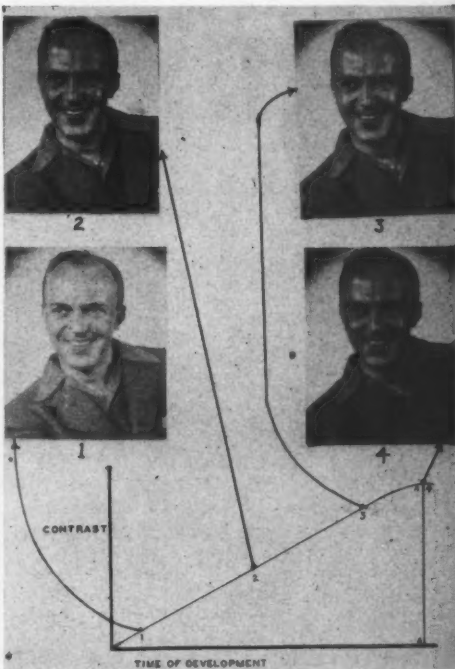




FIG. 5-A
USING fresh developer is important too. Made in an M. Q. bath that had become exhausted. The print is flat and muddy.

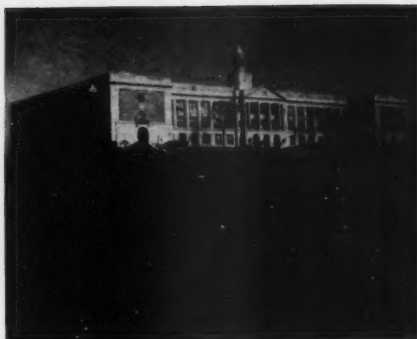


FIG. 5-B
MADE in a fresh M. Q. bath. Notice the sparkling blacks, a thing which an exhausted developer can never produce.

until fog sets in and the whites start to take on a greyish color. In a very short while the entire print will turn into a solid smooth black. If the print is snatched from the bath before this point is reached the picture has a general overall flat appearance.

What the developer really needs now is something which will act as a discriminator between the exposed areas and the unexposed sections. Fig. 3. Fortunately there is just such a chemical. Any bromide will act as a brake on the speed of the developer, although Potassium Bromide is generally used. To make the ex-

perimental developer complete, add 5 grains of Potassium Bromide and then the complete formula will read as follows:

Metol	12 ounces
Sodium Sulphite ...	25 grains
Sodium Carbonate ..	50 grains
Potassium Bromide..	5 grains
Water	12 ounces

This is the normal amount of bromide necessary in this bath, to produce successful results. Now expose another print and place it in the experimental developer. This time the results should be perfect. The print will have the usual snap that is

(To page 76, please)

THE REASON for blending developing agents. The negative on the left was developed in an Elon bath. It is rich in detail, but lacks pluck and snap. The negative in the center was developed in Hydroquinone. It is contrasty and lacks the fine detail that the print on the left had. Both agents were used in developing the negative on the right, which has detail and contrast.

FIG. 6-A



FIG. 6-B



FIG. 6-C



REPORT ON BIRCH FIELD

AFTER publishing the story of C. A. Birch Field's experiments in getting color from a black and white positive film, we received an invitation to attend an informal showing of a U. S. Signal Corps movie film which was made in Astoria, Long Island, to test out the Birch Field experiment.

The studio where this revolutionary work has been going on looks like a Hollywood set through which a careless wind machine has blown. The main studio is a large-sized room, twenty-five feet square. On the walls are a half dozen portraits of Mr. Birch Field's favorite models, past and present. They are undraped, luscious and lovely. The furniture in the room is ancient but solid and it is littered the way a man will do who expects to be undisturbed and whose cleaning lady has long been cautioned "don't move anything, don't throw anything away."

Mr. Birch Field is tall, spare and handsome. He is perhaps 60, and gives the impression of physical agility. His face is thin and sensitive and his bearing is imperious.

By profession Birch Field is a painter, but amateur photography is his love. Years ago, he got the idea that a black and white film held within it, somewhere, somehow, all the color that was in the original scene.

Birch Field turned off the lights, walked over to a table in the center of the room and flicked on the light of a movie projector. He threaded an ancient black and white Castle film into the projector, slipped his trick lens barrel into the projector in place of the old one, and started the projector motor. The reel ran its course—in color—*full color*. The screen was about three feet from the projector. The image blurs past that distance. Then he showed us a U. S. Signal Corps *black and white* film of an American flag, taken at every angle. We examined the film and threaded it into the projector.

It was projected and the flag showed up in full color. The colors are not perfectly true, but all of them are readily distinguished.

In the lens barrel of the projector, Mr. Birch Field has inserted a three color filter made of cellophane (for details see *MINICAM* for October, '43). The disc is inserted "somewhere" between the two lenses of the lens barrel. In that one word is the mystery, the delightful, devastating, damnable mystery of the Birch Field experiment.

We gained the impression that, for the life of him, Birch Field does not know, in advance, with each new projector, precisely where to place that filter. Should it go close to the concave or convex lens in the lens barrel? What should be the density of each of the colors on the disc?—no formula is available. Why does it work—why do we see color when light is projected through a black and white film shot with a non-color corrected lens? Mr. Birch Field doesn't know.

We read through some of the correspondence of the men who came to see the invention. The Science Editor of *Time*, Wendt, wrote: "I know as little now as I did before." Professors of physics and optics have come, marveled, pondered and write back to say they can't figure it out. Birch Field said: "Each night in bed before sleeping I chase light rays." Apparently the invention confounds certain basic optical principles, for no explanation is available based on currently accepted optical dicta.

Birch Field's son is with the U. S. Signal Corps and engaged in the job of mastering the invention and perfecting it.

Birch Field is unquestionably working in good faith, as an amateur, to advance photography. From him, and from amateurs like him, beginning with William Henry Fox Talbot, photography owes all its major developments. We salute Amateur C. A. Birch Field; God bless him!



ROBERT DE SANZAL

Loeber

EXPOSING at just the right instant is one of the most important things in catching fleeting expressions. Stan Loeber's patter gets a ready response. Cropping eliminated the stooped shoulders.



PLEASE

no phony monks

By C. STANTON LOEBER, A.P.S.A.

MY FRIEND, Fred Herrington, F. R. P. S., photographs gentlemen: I photograph bums. Fred is usually successful; his prints have hung in salons all over the country. And my bums, as is their fashion, get around, too. Fred has learned how to get under the skins of the big shots and I know how to get under the skins of my bums.

Many times when I have been out with friends, we'd see some bleary eyed individual with his toes sticking through his shoes; dirty, scraggy whiskers; ragged clothes . . . and some one has nudged me and whispered, "There's a bum, Loeb." Somehow, he thought just being a bum was sufficient for photographic material. Not so.

For a character shot, you must find strength somewhere in the individual's face. All of them have eyes, ears, noses, mouths, etc. How these various parts are put together; or how the individual uses them in speaking, is what counts.

Just about every one becomes self conscious before a lens. He either freezes up or tries to look the way he thinks he should look, which is pretty bad. It is rare that any one knows how to pose. The personality that makes our Joe that particular Joe that he is, is gone. His is just a dead pan or a simpering face and

it is up to the photographer to defrost that frozen face.

In an article several years ago (MINICAM, September, 1938), I told how I stalked my prey along San Francisco's waterfront and then shot him from the hip, thus catching him unaware and consequently getting natural expressions. Today the waterfront is out of bounds. Use a camera anywhere around this war conscious city and you are likely to have an irate citizen in your hair, or the military, or even the F. B. I.

Because of that, I have had to come indoors. I use the every day people that I can coax up to the studio in my home. I have had to learn the use of artificial



"TO MAKE himself comfortable the sitter leaned forward, and clasped his hands around a bony knee."

light, and to try to avoid the character shots that so often shriek their phoniness.

We see photographs of nice, clean American boys with fake ear rings, fake knives in their teeth, bandannas around their heads, fake expressions, all labelled, "Pirate." They are phonies . . . just as is the Pacific's gentleman wearing monk's cloth and holding a candle; the putted noses; the bath towel entwined head of some dark-skinned friend with a dark moustache and titled, "Hindu Prince." I want verity.

Any pirate, no matter how well done, will be a phony to most of us because pirates just do not exist any more and you know it. All the greedy adventurous impulses that turned a sea faring man into a pirate will be absent from your model's face, and instinctively your audience knows it. Monks wearing sandals and seated in musty cellars before wine vats and holding aloft dripping candles while quaffing shots of hootch, just don't ring true; especially when wearing machine-woven monk's cloth. But when I put a cook's hat on my Negro friend, you don't feel it to be phony. You know that there are many Negro cooks and such a picture does not tax your credulity.

Rather than doll up my Joes in bath towels or nose rings, I shoot them with out any thing other than their everyday clothes. Most of us feel uncomfortable in strange clothes, anyway. I use a sharp lens because I happen to like my pictures strongly photographic. My lights are two No. 2 photofloods in aluminum reflectors, with a third in case I want to lighten the back ground. My camera is a $3\frac{3}{4} \times 4\frac{1}{4}$ British Popular Reflex, very similar to the Graflex. This is carried from my shoulders by a strap so that my hands are free and I can quickly shift my angle in relation to the sitter. Exposures are made at $1/50$ or $1/60$ of a second.

The two floods are put within a couple of feet of the sitter, one close and higher than the other; the second farther back and about level with the sitter. One is to the left and the other to the right of the subject. By shifting these around and

watching carefully for shadows and highlights, I take just about anything, people, pets or any other subject.

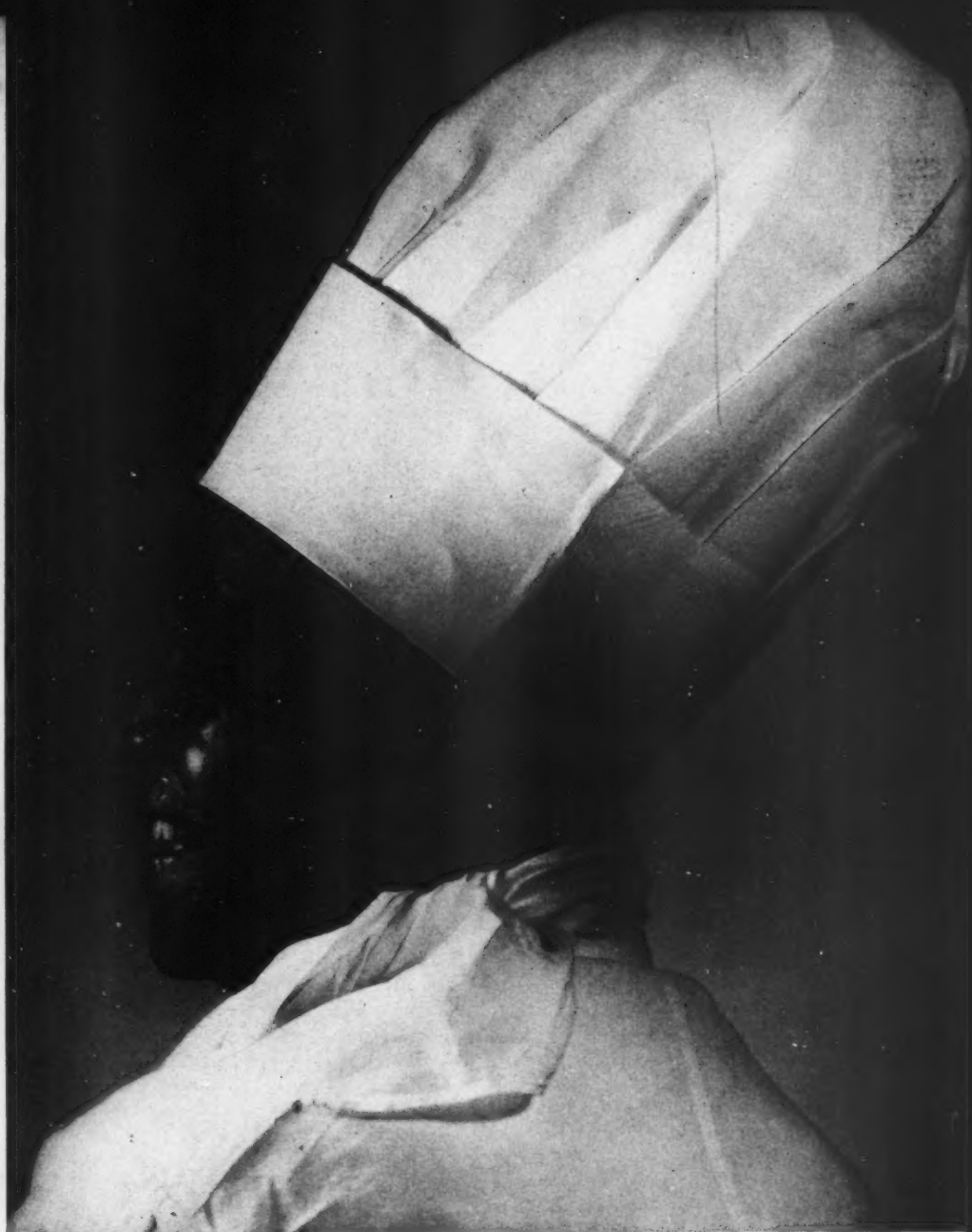
Lighting is extremely important. I find little need for any more than the two lights for it is not how many, but how well you use them. It is better that the stronger lighting come from above, even though it be but very little above eye level. This is because a low light introduces strange and unwanted eerie effects. Remember that as we normally see things, light comes from above in all cases. Only for stage lighting and freak effects is lighting used from below.

Give sincere study to your lights. Move them around slowly, and carefully observe the changes on the sitter's face. Remember that the shadow side of the face will be much darker in the final print than it appears to the eye. Squint your eyes so that you see through the lashes. Then look at the shadow side. If you can see detail through these squinted lashes, you will probably have detail in the final print. If you use a meter, the difference in reading on the bright side and shadow side of the face will be about three to one. If I use a meter, I expose for the highlighted side and let the shadows take care of themselves.

Of course, using the light so close is tough on the Joes I photograph. Some stand it very well; others have to be babied. The intense light has many advantages. It gives splendid textures, lots of punch, and that's what is wanted in character shots. Too, it enables one to give brief exposures, the only way to catch the fleeting expression.

By carrying the camera with a shoulder strap, one overcomes the stationary angle that the tripod imposes.

When the subject leans back a bit or moves around, I can refocus in a flash with the reflex camera and always be set for that next elusive bit of natural expression. I can shift position for better composition or better lighting without any lengthy bother of resetting tripod and camera. But in using the reflex type of camera, one must be constantly alert



NO MEAT SUH! JUST CHICKEN!

Loeber

"ALTHOUGH Al admits he couldn't even cook a pork chop no one is going to question the authenticity of this picture, for we are familiar with this subject matter. It rings true."

against shooting from an angle that is too low. Often this is very bad for it makes a normal neck look long and scrawny, it exaggerates the neck wrinkles . . . and it looks right up the nostrils, placing too great an emphasis there.

Fred Herrington insists that the eyes must have strong catchlights. Pink Arntzen always gets them in his characters . . . whether it's with ferricyanide or etching knife. . . . I don't know. But many of mine have no catchlights. There are times when I don't want them. Look at the print titled, "Joe."

Joe is really his name, a good fellow, thousands like him everywhere. He is not handsome; in fact, his girl friend, Mila, says he's the homeliest man she knows . . . but then, she's kidding. The thing I saw in Joe and wanted to photograph was that somber expression. Strong catchlights in those brooding eyes would not be consistent with that thin lipped, straight lined mouth; nor with the massive chin, long face and bushy hair. While Joe smiles easily and often, this severe expression is the rare one I had glimpsed and wanted. Catch lights would have diminished the startling severity.

By use of the third light on the back ground I eliminate shadows and keep background tone under control. The solid black seen at times is bad for portraits. It imposes a wall which one can not see past and into, nor can one see around the subject. Shadow areas are merged with the background; form, outline, and roundness in the subject are lost. I keep my backgrounds a darker tone than the brighter parts of the subject, but considerably lighter than the dark tones. By using the two No. 2 floods from the sides, subject shadows are kept off the back ground. The sitter is always a number of feet from the back drop; never placed too close to it.

There is a short ladder in the studio on which I can step up a rung or two for higher angles. See the print of De Sanzal. This was shot from the ladder. Because of the strong whites of the eyes caused by him looking up, there is no

need for catch lights. The high angle has emphasized his forehead and other interesting lines. It brings the shoulder lines high into the picture, hiding a rather long neck, and gives a strong, pyramidal composition. The hair is shown more effectively and the width of the forehead is exaggerated slightly for better results.

A low camera angle would have made the rather narrow shoulder lines obviously narrow and would have started them very low in the picture, leaving gaps between head and shoulders. They would have been square and poor compositionally . . . an uninteresting arrangement. This print looks like the sitter, but shows considerably more strength than is normally observed. "Humpf!" says De Sanzal, "People will think I have brains." But he likes it. And it is the possibility I glimpsed and wanted when I asked him up to the studio.

Al posed as the cook. Now, Al is no cook. He tells me that he can't cook even a pork chop. But there is no one who will question that print. It is authentic. It is real. And it is nothing dug up to represent some phase of a romantic idea of the past. In this case, it is a profile shot of the face taken right over Al's shoulder. His back forms a triangle to support his head and the cook's hat. In fact the whole print is made up of a series of triangles. The camera was on a level with the highlighted cheek.

For all these shots I have a piano stool for my models' seat, since it can be raised or lowered as desired and it has no back to get in the way. Again, it is hard. . . . I know, because I'm sitting on it as I write this . . . and not being comfortable, the sitter tries to get as comfortable as it will let him. That means that soon the model will slump forward. He forgets to sit up straight and taut like Napoleon. It causes him to relax. The head leans forward and carries out the more graceful curve of a bent back. That sounds a bit balmy, to be sure, but one of the mistakes which can be recognized in many prints is the uptilted head that forms a stiff angle from the rest of the body and which

"I WANTED to photograph Joe's somber expression. Strong catchlights in those brooding eyes would not have been consistent with that thin lipped, straight lined mouth, the long face and bushy hair. While Joe smiles easily and often this severe expression is the rare one."



JOE

Loeber

is generally unpleasing in a photograph.

Look at the print of De Sanzal made from the entire negative. You will see to what extent he went in order to get comfortable. It put him right under the light that was nearest and highest and threw a good shadow right under his nose. I spoke to him rather sharply and as he glanced up in surprise, I clicked the shutter. It was just the right moment.

Exposing at just the correct instant is one of the most important things in catching these fleeting expressions. In handling groups on Portrait Night at my camera club, I have often been amazed to hear complete silence from all the cameras ranged around me just when one of those interesting expressions came and went. And after it was gone, bang, bang, bang went all the shutters . . . too late.

Working hard to get expression means simply that I am keeping up a flow of talk all the time. I am saying funny things, mean things, anything to strike a spark of interest, anything to make the model forget himself.

These are the things . . . and the tricks . . . one must do to make character shots. Watch your backgrounds and your lights. Make your sitter as uncomfortably comfortable as possible. Keep your lights balanced. Draw out your model's personality . . . and all of them have it if you know how to get it. Click that shutter at just the right instant.

But above all . . . avoid the phonies. Make them real. Make them live. Don't try to fake some shadowy and vague by-gone era. Make them a part of today, the today that every one knows.

POSTER COMPETITION

HERE IS A MARKET FOR PICTURES TO INCREASE WAR PRODUCTION
\$10 TO \$25 PAID FOR PHOTOGRAPHS USED IN THIS POSTER SERIES.

THE Office of War Production in Washington has called the "Produce for Victory" poster series, some of which are shown here, the best they have ever seen; and justly so, for these posters inspire millions of workers throughout the nation every day—inspire them to keep on the job, to keep the wheels of industry rolling to win this war on the production line. They remind factory workers in short, terse messages that there is no time to be lost because of strikes, labor disputes and dissention.

More photographs are needed for this poster series.

Although used monthly in war production plants, their poster technique is so unique, so democratic, so inspiring, that companies not engaged in war production work are ordering them to bolster the morale and enthusiasm of their workers. The series was created by Ben W. Schenker, Chicago advertising writer.

A glance at a few of the posters reproduced here show their objective, and, what is more important to the photographer, the types of subjects used for illustration. People in their working togs, with the sweat and grime of their toil in evidence, are natural and convincing. In these post-



"Gosh! Look at 'em fly! My Pop helps make those planes. With flyers like that and workers like my Pop... us Americans are sure gonna win this scrap!"

PRODUCE FOR VICTORY!

FOUR COLOR posters, two by three feet in size, are made from black and white pictures supplied by amateur photographers. Production of the posters and selection of pictures is made



...where a man can say—"this is mine," where every man has the right to have his own farm—his own business—his own home • This is your America

...Keep it Free!

by Graphic Illustrators; selling and promoting the posters is handled by Sheldon-Claire Corp., both of Chicago, Illinois. The posters are sold mostly to defense plants.

ers actual workers speak to each other and their words inspire the kind of cooperation that is breaking all production records.

Amateur Charles N. Tigrett did the fine head of the farm lad with the straw hat. Along with the photo, Tigrett sent the suggestion, "Gosh! Look at 'em fly!," which quickly indicated its adaptability for a poster. Copy ideas such as this from the photographer help in adapting photos for this series.

One new poster is produced every week. It was discovered that the work of amateurs fits in better for this series. The professional shot usually looks a little stagey, whereas amateurs often take more naturally posed subjects.

This series will continue in production for some time and amateurs have available a wealth of material showing the America we are fighting to preserve. Thousands of such pictures appear in current magazines every day. They may show landscapes if they are exceptionally well done and have a point. Everyday activity on the home front is better.

Prints may be mailed to Graphic Illustrators, 540 North Michigan Avenue, Chicago, Illinois. Any size print may be sent. You will be requested to make enlargements after the subject has been approved for use as a poster illustration. A stamped, self-addressed envelope should be included

for returning prints not suitable. Graphic Illustrators cannot be held responsible for prints that may become broken or lost in the mails. Those submitting prints should state price desired, and be ready to furnish necessary releases from models. Payment is usually ten to twenty-five dollars.

The finished posters will be reproduced in full color by the color litho process and the overall size is 24"x36". Each poster will carry a credit line for the photographer. After a picture has been approved from the print sent in, two enlargements are required, either 11"x14" or 14"x17" in size. One of the enlargements must be kept fairly light and must be well washed, as this will be hand-colored by a color retoucher for reproduction.

If your print is made from a 35mm negative, send in a print at least four by five inches. If you desire your print returned, enclose a stamped, addressed photo-mailer.

Remember that:

1. Large heads of workers looking directly into the camera are most in demand, for in this poster series people are speaking their message to other workers and all Americans.
2. Remember to get releases from models and state the price you desire.
3. Mail prints to Graphic Illustrators, 540 N. Michigan Avenue, Chicago.

ALTHOUGH posters are reproduced in four color, the firm lithographing these does not use Kodachromes for them. Submit only black and whites; in any size. Some of the posters are made from 35mm negatives. If they like your print, you'll be asked to enlarge it to 11x14 on Illustrator's Special double weight paper.



From "The Chemistry of Photography," published by Mallinckrodt Chemical Works.

THE CHEMISTRY OF INTENSIFICATION

Correcting the Negative

It sometimes happens that a negative does not produce good prints because it is too weak, too dense, too flat, or too contrasty. If a new exposure is impossible, some of these faults can be partially modified and, in some cases, almost completely corrected by the processes known as "intensification" and "reduction."

If the negative is too thin, it contains too little silver metal in the image and can be strengthened by intensification. If the negative is too dense, it contains too much silver metal in the image and can be weakened by reduction. Sometimes, a faulty negative requires a combination of these processes. For example, if a negative is over-exposed the image is too dense with normal development and will require reduction only. On the other hand, if the same negative is under-developed the shadow details are not distinct and it requires intensification.

It is readily seen how necessary it is to correctly diagnose negative faults before attempting to improve them. This requires knowledge of the causes and effects of the factors producing bad negatives. These factors, such as incorrect time of exposure, or time of development, etc., are discussed in the following pages.

The term "intensification" as used in photography is the opposite of "reduction." It means strengthening a weak image so that proper printing depth and gradation of tone will result. Weak negatives are caused primarily by under-exposure or under-development. However, sometimes an over-exposed negative, normally requiring reduction, may not have the necessary contrast and by certain intensification methods can be built up to a higher degree of contrasting tones.

PRINT lacks brilliance and sparkle, as negative was too thin.



The intensification methods commonly used to increase the opacity of a weak negative accomplish their results in two steps. The image is first converted (oxidized) into compounds which are then readily changed (reduced chemically) by another solution to opaque metals and insoluble salts giving varying degrees of intensification. Mercury, Chromium, Uranium Ferrocyanide, etc., are all more opaque than silver.

To save time and money it is wise to first determine whether the negative can be intensified. If the weak negative is caused by decided under-exposure no process will help it as there is no complete image to intensify. If, however, the exposure has been sufficient to form even the faintest image, certain processes, such as the Uranium type and Silver type, will strengthen the weak detail enough to save otherwise worthless negatives.

Two common causes for weak negatives are:

Under-Development

Prints from an under-developed negative lack contrast and detail. Under-development can usually be determined by faint signs of the image in the shadows, with visible though small gradation of tones from light to shadow.

Such a negative may be intensified quite satisfactorily. The complete image is in the negative with all its detail if it has been properly exposed, but the process started in the developing bath was stopped too soon and must be indirectly continued.

Under-Exposure

Prints from an under-exposed negative are harsh and unpleasing. There is little or no detail as the time of exposure was too short to form a complete image in the gelatin. It may be improved slightly by intensification but, generally speaking, results

IF DETAIL is in the negative, intensification will bring it out.

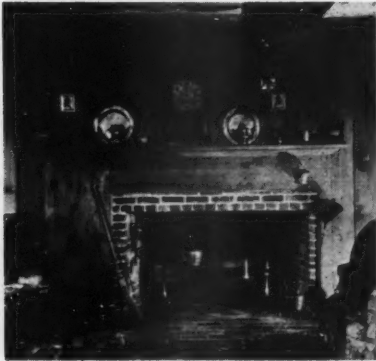


PHOTO DATA

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MINICAM
PHOTOGRAPHY

are far from satisfactory because there is little or no silver image, other than the high-lights, for the intensifier to strengthen. For negatives that have a complete but very weak image, particularly in the shadow portions, the Silver and Uranium processes are recommended. (See following pages.)

Under-exposure is determined by placing the negative on a sheet of white paper. If practically clear glass or film shows, under-exposure is indicated. Of course, the developing bath always slightly reduces the silver metal in the negative even in unexposed parts, so it is necessary to carefully distinguish between this slight development fog and the faintest tones in the image. This is done by comparing the lightest shadow tone of the image with the unexposed edge of the film or plate which has been protected from light by the holder.

In choosing the kind of intensification process to use, it is well to remember that they vary primarily in the degree of intensification, rather than in any marked differences of action. Some strengthen very slightly while others produce great intensification. The only differences of action which should be considered are the slight variations in solvent power on the weaker parts of the image. Some of the processes tend to dissolve out the shadows while strengthening the denser portions, whereas others, such as the Silver process and Uranium process, intensify proportionately, building up both light and heavy parts of the image equally.

Intensification Process

MERCURY TYPE AND FORMULAS

Intensifying with Mercury Salts imparts different degrees of increased opacity to the image and manufacturers of plates and films commonly include formulas giving satisfactory results.

Finely divided Mercury Metal is more opaque than finely divided silver metal. It more completely absorbs all wave-lengths of light, imparting an intense black color by replacing part or all of the silver metal in the image.

Most mercury salts are insoluble, but Mercuric Chloride (Corrosive Sublimate) is sufficiently soluble for use in a bath in which the well washed negative is placed. (In all except one of the following methods, all traces of Hypo must be eliminated by thorough washing to prevent irremovable stains.) The Mercuric Chloride in solution is broken down by the finely divided silver metal in the image (which in this form is a good reducing agent) to Mercurous Chloride. Simultaneously the silver metal is converted (oxidized) into Silver Chloride as follows:

Silver + Mercuric Chloride =
(forming image)

Silver Chloride + Mercurous Chloride
(forming image) (forming image)

Thus the original image formed by silver metal is changed to a mixture of Silver Chloride and

Mercurous Chloride. Both are white insoluble substances so that the negative appears free from any dark silver metal when viewed from the back by transmitted light. The completion of this first step is therefore indicated by the disappearance of the image. For this reason the Mercuric Chloride bath is called a "bleach."

Most formulas recommend adding a small quantity of one of the following chemicals: Sodium Chloride, Ammonium Chloride, Hydrochloric Acid, or Potassium Bromide. These substances in the order named increase the amount of Mercuric Chloride which may be dissolved in a unit of solution.

When bleaching is complete the negative is washed in a dilute solution of Hydrochloric Acid to eliminate any excess Mercuric Chloride left in the gelatin. Washing in water removes most of it but as Hydrochloric Acid increases the solubility, it removes all of the Mercuric Chloride and prevents future stains.

Blackening the Bleached Negative

After bleaching and washing in the dilute Hydrochloric Acid bath, the negative is ready for the final step of breaking down the Silver Chloride and Mercurous Chloride now forming the image. There are many ways to do this but the following represent those most commonly used to convert the bleached image into Mercury Metal, Silver Metal, or some complex Mercury-Silver compound giving an intense black color. These solutions are called "blackeners." The chemical action of the various kinds of blackeners follow:

Sodium Sulfite Anhydrous

A slight increase in density is obtained by placing the negative in a solution of Sodium Sulfite. This is a good blackener which converts (reduces chemically) the Mercurous Chloride to finely divided Mercury Metal and possibly a complex Mercury salt. The Silver Chloride is changed (reduced chemically) to Silver Metal but about half of the silver is lost due to solvent action which the Sodium Sulfite exerts, particularly in the shadow portions. For negatives that are hazy in the shadow details, this blackener is recommended because of this slight solvent action which clears out the haziness. For negatives that are originally too weak in the shadows for successful printing, this solvent action is disastrous, and some other blackener should be used.

The negative is thoroughly washed after intensifying to eliminate traces of Sodium Sulfite to stop further action.

EASTMAN KODAK COMPANY

FORMULA IN-1—For all Eastman Professional films bleach the negative in the following solution until it is white, then wash thoroughly:

Potassium Bromide	3/4 ounce
Mercuric Chloride	3/4 ounce
Water to make	32 ounces

The negative can be blackened with 10% sulfite solution, developing solution, such as Formula D-4a diluted

1 to 1, or 10% ammonia, these giving progressively greater density in the order given. To increase contrast greatly without increasing the density in the shadow portions blacken in:

Sodium or Potassium Cyanide.....	1/2 ounce
Silver Nitrate	3/4 ounce
Water to make.....	32 ounces

In order to make this up, dissolve the Cyanide and Silver Nitrate separately, and add the latter to the former, until a permanent precipitate is just produced; allow the mixture to stand a short time and then filter. This is called Monckhoven's Intensifier.

Ordinary Developing Bath

For about double the intensification produced by Sodium Sulfite solution, an ordinary developing bath is recommended as a blackener. All developers are chemical reducing agents so that when applied to the well washed bleached negative, both Silver Chloride and Mercurous Chloride are reduced to Silver Metal and Mercury Metal, plus complex salts varying with the kind of developer used. The disadvantage with this type of blackener is similar to that noted with Sodium Sulfite, since developers all contain Sodium Sulfite as a preservative which in these processes weaken the image in the shadows by dissolving some of the Silver.

Ammonia

Ammonia Water as a blackener gives even greater intensification than the two processes just mentioned. After bleaching, the negative is immersed in a 10% Ammonia solution. A complex Silver-Mercury-Ammonium Chloride compound is formed by the inter-action of the Silver Chloride and Mercurous Chloride with the Ammonia. This complex compound imparts a good black color to the image.

There is solvent action on the details of the image with this process also, as some Silver-Ammonium Chloride is formed which is soluble in the solution and washed away. This alters the gradation of tones in the final result and the process is not recommended for building up detail.

EASTMAN KODAK COMPANY

See E. K. Formula IN-1, above.

AGFA ANSCO CORPORATION

FORMULA—Dissolve 32 grains Mercury Bichloride in 3 1/4 ounces water and treat the negative in the solution until the silver image, seen from the back, is thoroughly bleached. After washing well the bleached negative is blackened in bath made of 150 minims Ammonia water 25% in 3 1/2 ounces water. Blackening should not be continued longer than necessary.

Potassium Cyanide-Silver Nitrate (Monckhoven)

For line negatives with great intensification on the heavier deposits of Silver in the image, this process is very satisfactory. It is also valuable for over-exposed but under-developed negatives normally flat, as the strong tones more than double their printing value, while the very thin shadow detail is weakened, thus increasing the contrast.

When Potassium Cyanide and Silver Nitrate are brought together in solution, a precipitate of insoluble Silver Cyanide is first formed. On standing, part of the precipitate goes into solution through the formation of a soluble Silver-Potassium Cyanide salt. It is this soluble salt which is thought to react with the Mercurous Chloride in the bleached image.

Mercurous Chloride + Silver-Potassium Cyanide =
(in image)

Silver + Soluble Substances
(added to image)

The Mercurous Chloride in this reaction does not release Mercury Metal but is thought to precipitate Silver (from the solution) which builds up the image very materially.

Caution: Always have an excess of Silver Nitrate in the blackening solution so that a permanent precipitate is obtained even after standing for awhile. Otherwise, the excess Potassium Cyanide will exert solvent action all over the image.

Ferrous Oxalate

After bleaching with Mercuric Chloride solution, a bath containing Ferrous Oxalate gives very satisfactory blackening. There is no reducing action in the shadows and proportional intensification all over the image is produced. This is a very decided advantage in some cases, particularly for under-developed negatives which are clear and bright but thin.

Ferrous Oxalate is insoluble in water but is easily prepared by combining solutions of Ferrous Sulfate and Potassium Oxalate in water slightly acidified. Its chemical reducing power converts the Mercurous Chloride and Silver Chloride forming the image after bleaching, into Mercury and Silver Metals respectively.

This process may be repeated as many times as necessary by rebleaching and reblackening each time. In this way additional uniform intensification results.

FORMULA—Fix and wash negative well.

Then bleach completely in:

Mercuric Chloride.....	1 ounce
Water (hot).....	16 ounces

Cool and add

Hydrochloric Acid.....	300 minims
------------------------	------------

Wash well for twenty minutes in RUNNING water.

Blacken in solution made as follows:

No. 1

Potassium Oxalate Neutral.....	5 ounces
Water (hot).....	20 ounces

(Cool this solution and use clear supernatant liquid-only.)

No. 2

Iron Sulfate.....	5 ounces
Sulfuric Acid.....	30 minims
Water.....	20 ounces

For use make bath by pouring one part No. 2 into three parts No. 1.

Wash well and repeat entire operation if more intensification is desired.

(To page 70, please)

3 out of 4 *FIRSTS* } **GRAFLEX-made!** 21 *PRIZE WINNERS* }

U. S. CAMERA PHOTO CONTEST



1st PRIZE: Amateur
Country Snowstorm by Gustav Anderson



7th PRIZE: Professional—*Mother and Child* by Charles Del Vecchio
(Washington Post)



1st PRIZE: Servicemen—*Anti-Aircraft Fire, North Africa* by Officer-Photographer
(U. S. Army Signal Corps)



2nd PRIZE: War—*Shrocketing Ship*
by Chief Photographer's Mate
William J. Forsythe (U. S. Coast Guard)

CONTINUING proof that GRAFLEX gets great pictures! In a field of 40 prizes offered—3 *firsts* and a grand total of 21 *prize-winning photographs* were taken with GRAFLEX-made cameras.

In the *Servicemen* Classification—7 out of 10; *Amateur*—4 out of 10; *War*—5 out

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(Continued from page 68)

MERCURIC IODIDE TYPE AND FORMULA

This Mercury process deserves mention because the intensified image is not affected by traces of Hypo remaining in the negative from the fixing bath.

No preliminary bleaching as with the other processes is necessary, as the washed negative is bleached and blackened in one solution containing Mercuric Iodide and Sodium Sulfite Anhydrous. Moderate intensification is obtained, the image finally consisting of Mercury Metal, Silver Iodide and possibly a complex salt.

As the Mercuric Iodide converts the Silver Metal in the image to Silver Iodide it (Mercuric Iodide) simultaneously is changed to Mercurous Iodide. This latter salt is unstable and readily converted by the Sodium Sulfite into Mercury Metal.

It is advisable to again develop and fix the negative after this intensification process, since the Silver Iodide forming part of the image is not stable and will fade on exposure to light. Redevelopment reduces it to Silver Metal so that the final intensified negative consists of Mercury Metal, Silver Metal and a complex salt, all of which are permanent.

Mercuric Iodide is a red substance insoluble in water but soluble in a solution of Potassium Iodide, forming a colorless double salt Potassium-Mercury Iodide. The Mallinckrodt Chemical Works manufactures a purified grade of Mercuric Iodide for this purpose. However, most formulas include directions for producing Mercuric Iodide when wanted, by combining proper proportions of Potassium Iodide and Mercuric Chloride in solution.

PRINT from under-developed negative.



FORMULA—Remove negative from fixing-bath and wash. Bleach in—

No. 1	
Mercuric Chloride	175 grains
Water	10 ounces

No. 2	
Potassium Iodide	1 ounce
Water	10 ounces

Add No. 2 solution to No. 1 solution and immerse negative which becomes brown.

Wash well.

Then redevelop in non-staining developer such as Elon-Hydroquinone formula, etc.

The above processes serve to illustrate the variety of methods at the disposal of photographers to solve the problem of weak negative by use of Mercury salts. Some of the methods employing opaque metals and salts other than those of Mercury have a definite place and include the following:

CHROMIUM TYPE AND FORMULA

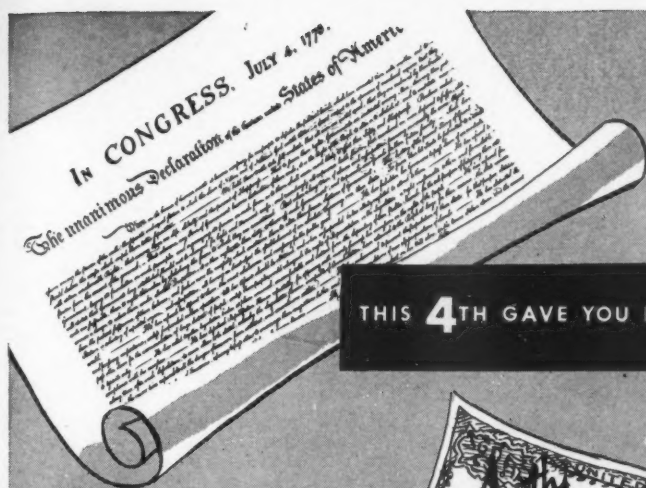
The Chromium intensifier is of great practical value as the process is simple and may be repeated until the desired intensification is obtained.

Potassium Bichromate in solution acidified with Hydrochloric Acid is a good oxidizing agent. In this process it is used as a bleaching bath, readily converting the finely divided Silver Metal into Silver Chloride, Silver Chromate and Chromic Oxide (all insoluble). As a blackener, an ordinary developing bath is used to reduce the well washed bleached negative to Metallic Silver, Chromium and possibly Chromium Chromate.

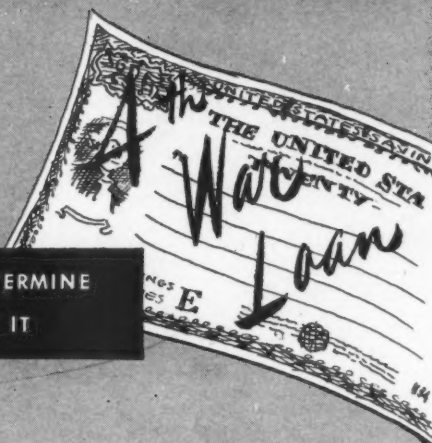
The amount of intensification is inversely proportional to the amount of acid present and it is (To page 72, please)

INTENSIFICATION builds up negative.





THIS **4TH** GAVE YOU FREEDOM



THIS **4TH** WILL DETERMINE
WHETHER YOU KEEP IT

LET'S ALL GET BACK OF THE ATTACK

BUY—AND KEEP ON BUYING

WAR BONDS

KIN-O-LUX, INC.

105 WEST 40 STREET, NEW YORK

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(Continued from page 70)

possible to control the degree of intensification by altering the acid concentration. Formulas generally indicate two or three concentrations, the weaker the acid the greater the intensification.

Another advantage, besides the fact that it may be repeated, is its tendency to oxidize any traces of Hypo left in the negative from the fixing bath. This oxidation forms soluble products which are washed away.

EASTMAN KODAK COMPANY FORMULA IN-4.

	Stock Solution
Potassium Bichromate.....	3 ounces
Hydrochloric Acid, concentrated.....	2 ounces
Water to make.....	32 ounces

For use take 1 part of stock solution to 10 parts of water. Bleach thoroughly, then wash five minutes and redevelop in a non-staining developer such as Formula D-4a diluted 1:3. The degree of intensification may be controlled by varying the time of redevelopment. Wash thoroughly after intensifying. Greater intensification can be secured by repeating the process.

SILVER TYPE AND FORMULA

This is one of the best processes for correcting under-exposed negatives. By this method additional Silver Metal is deposited from a solution even upon the very weakest parts of the image, building the various tone gradations proportionately and permanently.

The negative is first hardened in a Formalin bath to prevent excessive softening of the gelatin during the various steps in the process. It is thoroughly washed and then placed for no more than a minute in a bath containing Potassium Ferricyanide and Potassium Bromide. There is no apparent action after this short bath but it has been found necessary to take this step to prevent staining during the process. Great care must be taken not to allow the negative to remain in this Potassium Ferricyanide-Potassium Bromide bath more than a minute as it has a tendency to bleach the image which is undesirable in this process.

After rinsing, the negative is then immersed in a solution of Silver Nitrate, Ammonium Sulfo-cyanide and Hypo which is adjusted right on the point of precipitating Silver. Pyro preserved with Sulfite is then added as a reducing agent to start the Silver precipitation from solution.

Silver Nitrate and Ammonium Sulfo-cyanide immediately react when brought together in solution forming a white precipitate of Silver Sulfo-cyanide. Silver Nitrate + Ammonium Sulfo-cyanide =

Silver Sulfo-cyanide + Soluble Substance
(Precipitated unless Hypo is present)

This chemical reaction in itself is useless unless the immediate precipitation of Silver Sulfo-cyanide is controlled. Hypo prevents this precipitation by forming soluble Silver-Sodium Thiosulfate. Formulas are carefully worked out to adjust proportions of these chemicals, so that the mixture will always be clear but just on the verge of precipitating. For practical purposes we may consider that the Silver Sulfo-cyanide is reduced gradually to Silver Metal by the Pyro.

Silver Sulfo-cyanide + Pyro =
(in solution)

Silver + Water-Soluble Substance
(deposited on image)

The image may thus be built up indefinitely by the addition of Silver precipitated out of the solution. This process is fundamentally possible because the Silver precipitates more readily on the Silver already existent in the image, rather than on those parts where no Silver exists.

J. B. B. WELLINGTON FORMULA—Harden for five minutes in following bath:

Water.....	10 parts
Formaline.....	1 part
Rinse well and Immerse for ONE MINUTE only in	
Potassium Ferricyanide.....	20 grains
Potassium Bromide.....	20 grains
Water to make.....	20 ounces

Rinse well and intensify in bath made from following stock solution:

	Stock Solution No. 1
Silver Nitrate.....	800 grains
Water (distilled) to make.....	20 ounces
	Stock Solution No. 2
Ammonium Sulfo-cyanide.....	1400 grains
Hypo.....	1400 grains
Water to make.....	20 ounces

For intensifying bath add one ounce No. 1 to one-half ounce No. 2, stirring vigorously. The mixture should be clear. Then add one dram of 10% Pyro Solution (preserved with Sulfite) and 2 drams of 10% Ammonia Water. Pour above over negative and Silver starts to deposit within a minute or two. When satisfactorily intensified, remove and fix in acid-fixing bath.

Wash well.

URANIUM TYPE AND FORMULA

This process is also valuable for under-exposed negatives, as all existent details in the image are greatly built up as well as the denser portions. Dark brown or reddish Uranium Ferrocyanide, into which the image is partly converted, is much more opaque than Silver.

A solution containing Uranium Nitrate, Potassium Ferricyanide, and Acetic Acid is used for changing the Silver image into this insoluble salt of Uranium. When the negative is immersed, Silver Ferrocyanide is formed but immediately is converted into Uranium Ferrocyanide. As this latter substance is soluble in alkaline solutions, Acetic Acid is added to insure a slight acidity to preserve the image thus formed.

Extreme care must be taken to wash out all traces of Hypo left in the negative before using the process, otherwise a red Sulfide of Uranium is formed which causes red stains.

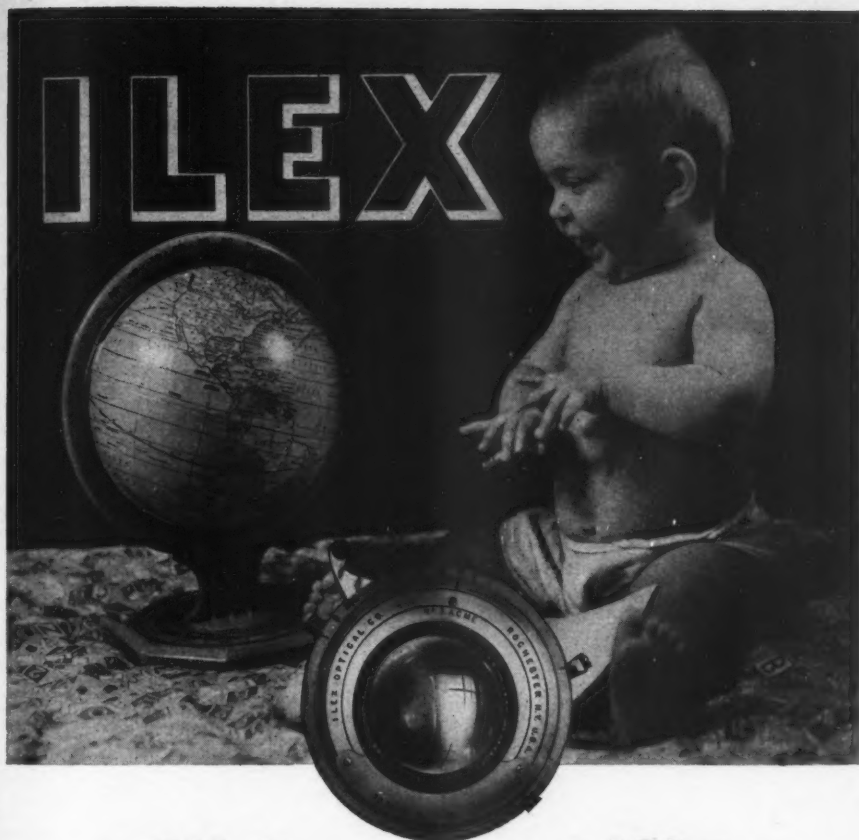
FORMULA (Neblette)—Wash negative well, freeing it entirely from traces of Hypo.

Intensify in solution made as follows:

	No. 1
Uranium Nitrate.....	100 grains
Water to make.....	10 ounces
	No. 2
Potassium Ferricyanide.....	100 grains
Water to make.....	10 ounces

For use, make bath by combining 10 parts No. 1, 10 parts No. 2 and 2 1/2 parts Acetic Acid Glacial. Wash well after sufficiently intensified. Yellow stains may be cleared with 10% solution Ammonium Sulfo-cyanide.

ILEX



WHEN WAR CLOUDS CLEAR ★★ LOOK TO ILEX

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MINICAM PHOTOGRAPHY has 64,242 paid A. B. C. monthly circulation; including all manufacturers, jobbers and dealers in the photographic industry; as well as well-known photographers, instructors and classes in photography, photo squads of the Armed Services, advanced amateurs, beginners, and the Technical Library of EVERY Army Air Base in America. These 64,242 readers are an influential market. Want-Ads: 10 cents per word, each insertion, minimum 15 words, payable in advance. All ads restricted to agency type. Forms close February 8 for March issue.

WANTED TO BUY

WANTED Kine Exakta or Exakta B also case. A. Rich, 645 West End Ave., N. Y. C.

MAKE MONEY in your spare time. Buy photographic merchandise for United Photo Supply Service, 710 Leon Street, Gatesville, Texas. Write for a complete listing of the many photographic items needed by this company. They will buy direct from you, paying a nice profit, or buy from the camera owners and pay you a fair commission. They want new or second-hand merchandise in good condition. Garrison Photo Supply Service has been in business since 1919. You can make money in spare time by selling and buying hard-to-get items.

AGFA MEMO F3.5 WANTED. Write giving particulars. Bill Abel, 1516 Central, Great Falls, Montana.

Exakta II, V. P. using 127 film, State price, condition. Pvt. Leo Rainer, Valley Forge Gen. Hosp., Phoenixville, Pa.

WANTED Argus, Perflex or similar 35mm. camera, case. B. Alden, 617 West End Ave. 13, N. Y. C.

WANTED for immediate cash. Minox camera with quantity of film and Minox developing tank. Also Kodak Medalist camera with film pack back. Give lowest price in first letter. Garrison Photo Laboratory, 154 Shepard Avenue, East Orange, N. J.

WANTED—Female Nude Pictures, 8x10 Glossy. Will pay \$5.00 each for all accepted. Mail prints to Garrison Associates, 154 Shepard Ave., East Orange, N. J.

Send us your camera today. Will send certified check by airmail immediately. Items held ten days for your approval of our price. Free estimates—Trade-ins. Highest prices in the U. S. for photo equipment. "Cleveland" camera super-market. Rothbart and Reitman, 1900 East 9th St., Cleveland, Ohio.

WANTED. Telephoto lens, 17 inch or larger. For 3¼x4¼ Graflex series D. Describe fully giving lowest cash price. Garrison Laboratory, 154 Shepard Ave., East Orange, New Jersey.

WANTED: 3¼x4¼ Anniversary Speed Graphic in perfect condition, including Zeiss f:4.5 or faster lens, Range Finder, and Flashgun. Cash waiting. Describe fully in first letter giving lowest cash price. G. N. Garrison Laboratory, 154 Shepard Ave., East Orange, N. J.

WANTED: Leitz Elidia Printer. Lt. Col. N. T. Norris, 777th Tank Battalion, Ft. Knox, Ky.

WE BUY sell and trade all types of cameras and equipment. Get our price before you sell. Rosenfeld, 123 South 13th St., Philadelphia.

WANTED—Nude Pictures of all kinds and all sizes. Including Nudists Groups and all of Real People. Will pay from \$1.00 to \$5.00 each for all accepted. Send Prints to J. E. Reed Co., Hollis 7, N. Y.

WANTED—Contrasty female nudes, 8x10 glossy art studies. Columbia News-photos, 60 East 42nd Street, New York, N. Y.

WANTED—35mm. negative carrier for Super Omega B enlarger. Name prices wanted. M. O. Shreve, 4212 Sassafras Street, Erie, Pa.

16MM SOUND-SILENT Projectors, Cameras, films. Highest prices paid. Zenith, 308 W. 44th, New York City.

FOR SALE

FOR SALE—Thornton Ruby Reflex, 3¼x4¼ film pack or cutfilm, F4.5 Cooke Anastigmat, case, three holders, extra film. Ben Miller, 8 Market St., Ellenville, N. Y.

MOVIE FILMS and Amplifiers for sale. Films exchanged 30c up. Gordon Conner, Port Clinton, Ohio.

ROLLEIFLEX Automatic Perfect condition, case, filters, \$225 Sunshade 36 Rolls film. Contax III Sonnar F.2. New. Gadget Bag. 135MM. Telephone F4. Universal Finder, Filters, Flash Gun, 15 Rolls color and black and white film, \$550—Wm. Gent, Winston, New Mexico.

5"x7" GRAFLEX Series B-F.P.A. 4.5 Anastigmat \$110.00. Perfect. 3¼x4¼ R.B. Graflex—4.5 anastigmat—septum holder, \$95.00. Perfect. Crosson, 3465 Wager, Detroit, Mich.

FOR SALE—College or High School graduation black caps and gowns, white collars. From rental stock \$3.00 per set. When new gold for \$15.00. Lindner 153-M P West 33rd Street, New York 1.

PIN-UP GIRL CARDS, provoking poses. Also newest cartoons, photos, etc. Big quarter-pound assortment, \$1.00, prepaid. Leadall Co., 126 Lexington Ave., New York.

IT'S FUN collecting coins using albums providing spaces for each date. Albums for pennies, nickels, or dimes. Only 25c each. Ben's Coin Company, 72-M West Washington, Chicago.

WELLS-SMITH will buy, sell or trade. Read our advertisement. Chicago 3, Illinois.

BENTZIN Primaflex, Holders Telefoto Extras \$275; 15.52.5. Binoculars \$175; 5" Wollensak 16mm 975; Plaubel Makinas I, II, IIS, \$100 up; Bolex 16mm with Projector; Bell & Howell 70 DA; Victor III Turret Model F3.5 975; Zeiss Maximar, Ideal, Jewel, Contax Super B, Contaflex; Leica with extras, Graflex, Speed Graphics, Color, View and Stereoscopic Cameras; Lenses, Projectors, Enlargers; 180mm Sonnar F2.8 \$400. No lists. State your needs. Will buy, sell or trade. Professional Movie Andre Debrrie Tripod \$150. Wells-Smith, 75 East Adams St., Chicago 3, Illinois.

Perflex 22 Sciener 3.5 lens with case. Both new. Best offer. Cpl. Proctor, QM Sec., Fort Rodman, Mass.

AUTOMATIC Rolleiflex, permanent Kodachrome Adapter, Bayonet Sunshade, and three filters, also 12 rolls of film. Omega B enlarger and lens all equal new \$330.00. Battaille, 1062 East Cooper, Lexington, Kentucky.

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35mm. BULK FILM, Plus X, Super XX, others. Goerz Double Anast. 2½ in Vate shutter \$60.50. Carl Zeiss Unar 3¼" F4.5 in barrel \$32.50. Carl Zeiss Tessar, 6" F4.5 in barrel \$42.50. Goerz Celor 6" F4.8 in barrel \$35.00. Wollensak Enlarging 3½" F4.5 in barrel, L.N. \$15.00. Luxor Ansat, 6" F7.7 in Ibsor shutter \$15.00. Ross Telecentric, 11" Telephoto F5.4 in barrel \$64.50. Camera Mart. 70 West 45th St., New York City.

ZEISS SONNAR f:2.8 lens for Contax II, latest model, mounted with diaphragm, like new, in leather pouch. \$75. W. SCHOENFELD, 506 N. 35th St., Corvallis, Oregon.

BOOKS—EDUCATIONAL

OIL coloring photographs a fascinating hobby or profitable business. Learn at home. Easy simplified method. Previous experience unnecessary. Send for free information and requirements. National Art School, 1315 Michigan, Dept. 2121, Chicago.

RECEIVE \$3.00 Best-seller, monthly selection, books for 75c on approval without obligation. Kassen, 396 Broadway, New York.

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DMITRI KESSEI, Esther Born, James Viles, Ben Schnall and other "famous professionals and amateurs" are pupils of the Rabinovitch Photography Workshop, 40 W. 56, New York, Catalog M4.

MOVIES—SLIDES—PHOTOS

ENLARGERS—Build your own. Kit of parts, \$6.00. Free Particulars, Crescent Engineering, Box 251, South Pasadena, California.

MOVIE FILM—Large assortment of 8mm. westerns, comedies, dramas. Mail orders filled. ZIENTEK-FILMS, 1129 Monroe Circle, Brooklyn, Baltimore 25, Maryland.

FREE, 1944 Movie Film Catalog; we have film for all projectors, and for all cameras. Sample films, 10c. Goodwill Company, Jackson, Tennessee.

BETTERPIX Outdoor Safety Film, 100 feet 16mm, \$2.50; 25 feet Double 8mm., \$1.25. Free Developing. Finished Subjects Sold. Exchanged. Sound Library BETTER FILMS, 742 New Lots, Brooklyn 7, N. Y.

"Lorelei," glamour film, extraordinary, 8mm. 50 ft., \$2.00; 16mm. 100 ft., \$4.00, prepaid. Complete lists, glamour sample, 10c. Jenkins, 392-D, Elmira, N. Y. Kodachrome subjects also available.

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QUALITY PHOTOSTAMPS from any snapshot, \$2.00 hundred, "8-23 60th Road, Elmhurst 3, New York.

OUTSTANDING 8mm-16mm. films. 16 mm sound films. Lists 3c. John Demsey, 1613 Stewart, Youngstown, Ohio.

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THREE 5x7 Enlargements, from photo or film \$1.00. Abbey Studios (3-b) St. Louis, Mo.

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PIN-UPS, 180 gorgeous girl subjects! Samples 25c. Huge Bargain Film \$1.00. Clover Novelty, Dept. M-31, Hollis 7, N. Y.

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SAVE on Home Outdoor Movie Film, while supply lasts, 100 feet 16MM., \$2.50; 25 feet double 8MM., \$1.25. Free Processing. Multiprisers, 171 Euclid, Bridgeport 4, Conn.

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Beautiful Enlargements From Your Negatives. Double Wet. Matt Paper. 4"x6"-20c. 5"x7"-30c. 8"x10"-50c. 11"x14"-90c. Minimum order \$2.00—Please remit with order. Southern Photo Lab's, Route 7, Box 165, Pine Bluff, Ark.

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WORLD'S Greatest Show Rental Library. Economical rental plan brings latest war news releases weekly. Write for details now! Kenwood Films, 818 E. 47th St., Chicago 15, Ill.

8-16MM. Sound-Silent Films. Large selection. Special discount. Zenith, 308 W. 44th, New York City.

MISCELLANEOUS

SELL YOUR PICTURES! "Profitable Photography" tells you what pictures to take and how to sell them. Frank, honest, helpful. Send 10c for sample copy. Profitable Photography, DI, 225 East 44th Street, New York 17, N. Y.

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START Your own magazine agency at home. No capital required. Write for particulars and supplies. American Readers' Service, Hatfield, Penna.

EDISON KINETOPHONE WANTED—MODEL desired is Edison's early coin operated motion picture machine in wood cabinet, once used extensively in penny arcades. Will also purchase other Thomas A. Edison items. WARD HARRIS, 519 Market St., San Francisco 5, Calif.

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MINERALS. Coins, Stamps, Indian relics. Pistols, Old glass, Catalogue \$5. Las Cruces Curio Store, Las Cruces, New Mexico.

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Nothing Else Like It. Increase your Kodachrome Collection by exchanging your surplus slides for others. Send Twenty-Five cents for plan and Membership in PanAmerican Kodachrome Exchange, 212 Pacific Avenue, Houston, Texas.

"GENUINE" Oil Paintings from 35-mm Kodachrome or color transparency, Landscape, Portrait, etc. Moderately priced, museum quality. Write for full particulars. C. W. Stevens, Jr., Artist, Kensington, Conn.

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GET Humorous Alaska license to hunt Jays. Send 25c. A remarkable novelty. Alaska Sportsman, Ketchikan, Alaska.

NATURAL LIFELIKE OIL COLORING done by an expert in the art: 5x7, \$1.25; 8x10, \$2.00. Give color description. C. O. D. orders accepted. ZOTTI PHOTO, 844 6th St., Rock Springs, Wyo.

"PRESS IDENTIFICATIONS," Tags, etc. for accredited news gatherers. Supplies of valuable use to every photographer. Request FREE catalog today. Press Supplies, 1934-M Eleventh, Washington 1, D. C.

FLASH pictures are easy and sure with a Morgan Flashguide, only 25c postpaid. Morgan Camera Shop, 6262, Sunset, Hollywood 28, California.

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FOXES, Nine in one day. Trap slyest furbearers. Particulars free. Guaranteed. Write, Estabrook, Sherburne Ctr., Vermont.

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CHINESE Physicians, secrets, 165 pages, rare illustrations, unpublished truth, secret healing arts, peculiar cures. Write Garding Ltd., Box 627, Metropolitan Station, Los Angeles, California.

THRILLING Art Pictures, Novelties, Books. Big assortment, \$1.00. Catalog, 10c. Edward Gross, Dept. M, Carnegie, Pa.

HALFTONES OF YOUR PICTURE, for newspaper or magazine publication. 75c. Etchings, 50c. Econoprint, Kokomo, Indiana.

ARTIST for prominent professionals offers oil tints and heavy oils. Specify coloring. Tints: 8x10, \$2.50; 11x14, \$3.00. Heavy Oil Brush: 8x10, \$5.00; 11x14, \$6.00. Dorothy Carver Stafford, 53 Chickering Street, Pittsfield, Mass.

INSURANCE on your photographic equipment. The cost is low and it will protect you financially against loss or damage to your camera, films, and equipment wherever they may be. (professional or amateur) We will gladly give you facts and figures. Write S. R. Birchard Company, 801 E. Midland Street, Bay City, Michigan, Est. 1892 as Insurance Counsellors.

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100 8½x11 Bond letterheads and 100 Envelopes \$1.00 postpaid. Benneville, 907 West Roosevelt, Philadelphia 40, Pa.

DISTINCTIVE Stationery, Reasonably priced. Samples free. Stumpkraft, South Whittier, Indiana.

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DEVELOPING-PRINTING-REPAIRING

35MM. FANS—See our display advertisement on page 96, Minipix Laboratories.

18 EXPOSURE 35MM Film Fine Grain Developed and 18 Big Sparkling Enlargements, 75c. 36 Exposure rolls \$1.25. 18 Exposure Reloads, 50c. Photo-shop, Linton 3, Ind.

BEAUTIFUL Oil hand-colored enlargements from your negatives: 5x7—\$1.35; 8x10—\$2.10; 11x14—\$3.00. From photos 50c extra. Specify coloring wanted. Special 2½x3½ negatives and prints from 16mm films—8 for \$2.00; 2½x3½ negatives and 4x6 black and white enlargements from 35mm Kodachrome Transparencies—8 for \$2.00. Specialists in miniature finegrain photography. Columbus Photo Supply, 146 Columbus Ave., New York.

EXPOSURE METERS REPAIRED—We Repair Weston, DeJur, Carl Zeiss, etc. **EXPOSURE METERS:** Install and make replacements. We also properly repair BINOCULARS & SCOPES. Mail instrument in for estimate. Time—10 Days Maryland Precision Optical Co., N. E. Baltimore & Carey Sts., Baltimore 23, Md.

FOR Fast developing service—write for safety film mailer. Three 5x7 from photo, \$1.00. Reloads, 36 exposure, \$1.25. Abbey Studios, St. Louis 3, Mo.

6-8 EXPOSURE Rolls developed and enlarged mammoth size 30c. Reprints 3c. Thrifty Photos, Box 46, South Gate, Calif.

FINE GRAIN DEVELOPING—3½x5 Prints, 8 Exp. 30c; 18 Exp. 55c; 36 Exp. \$1.10. ROBERT KOLB, 5358 Cabanne, St. Louis (12), Mo.

GLOSSY Contact Prints 3c each from any size roll film negative except 35-MM. Capewell, 136 Maple Ave., Hadfield, N. J.

ALL TYPES Exposure Meters Repaired. Send meter for estimate. If not satisfied, meter will be returned. Accuracy guaranteed. P. O. Box 650, Woodmere, L. I., N. Y.

NO sound on 8mm FILM! Impossible? No, sir! It's here. One of our editors called on the amateur who has accomplished this sensational invention. Read about "Sound on 8mm Film" in Minicam for March.

ALASKA'S UNIQUE and VIVID OIL COLORING. Have your negatives enlarged and colored in the hues of the land of the MIDNIGHT SUN. Any size negative enlarged and colored to 5x7, \$3.00; 8x10, \$3.50; 11x14, \$4.00. Photographs colored, 5x7, \$2.50; 8x10, \$3.00; 11x14, \$3.50. Address COLOR-GLO, Box 1949, Juneau, Alaska.

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PIANISTS-ORGANISTS: Quickly improve technique, sightreading, accuracy, memorizing, playing through mental-muscular co-ordination. Free booklet. Broadwell Studios, Dept. 174B, Covina, Calif.

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INVENTORS—secure patent protection now. Avoid delays. Get new FREE book, "Protect, Finance and Sell Your Invention" and FREE "Invention Record" form. Experienced conscientious counsel. Reasonable fees—easy payment plan. Write today. Mc Morrow & Berman, Registered Patent Attorneys, 255-B Albee Bldg., Washington, D. C.

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36 ENLARGEMENTS**

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Prove it to yourself—send your next roll to us. Fine grain developing, "electric-eye" precision. Modern Beauty prints $3\frac{1}{4} \times 4\frac{1}{2}$ ", deckled, with embossed margin and date. If less than 25 prints Free print credit. Send money and roll or write for Free Mailers.

25c

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AMERICAN SCHOOL OF PHOTOGRAPHY
1318 Michigan Avenue Dept. 1942 Chicago, Illinois

Analyze Your Developer

(Continued from page 56)

so characteristic of the developing process.

In the modern developer, however, Potassium Bromide performs a double function. Not only does it act as the restrainer or brake on the speed of a developer, but it also can be made to control the contrast. This latter characteristic indirectly controls the color or tone of the image.

The longer a picture is left in a developer the greater its contrast becomes. In order to develop a print beyond the normal time and take advantage of this rule we add more bromide to the developer. Since this bromide prevents the developer from attacking the light areas of the picture we may leave prints in until the dark areas have reached the degree of contrast wanted. Since additional bromide slows up the developer, the bath will form fine grains of silver on the developing image. This causes the characteristic warm tones which prints have when developed in a portrait formula. Figure 4 will show how the increase of contrast is obtained by the liberal use of bromide.

The experimental developer, which was used as an example throughout this discussion, contained Metol as the developing agent. Various formulas use different developing agents, and some are strikingly opposite in their reactions. Metol will produce negatives of extreme delicacy with excellent shadow detail. Fig. 6a.

Often we want more contrast than the usual amount that Metol will produce. Hydroquinone will produce a tremendous amount of contrast in a picture in a very short time. Fig. 6b. However, when Hydroquinone is used alone as the develop-

(To page 78, please)

35MM FILMS NOT DOLLAR DEVELOPING

Your negatives deserve quality developing. We give individual attention to each negative. No mass production! 35mm films developed—fine grain vaporized to prevent scratches—enlarged to $3\frac{1}{4} \times 4\frac{1}{2}$. Beautiful, quality prints guaranteed. Single wt. glossy paper, 36 exp. \$1.25. Double wt. portrait paper, \$1.75. 18 exp. roll, 70c. 1-day service. Reloading: 36 exp., 60c; 18 exp., 40c. FREE mailing bags.

5-And Beautiful Enlargements from 8 exp. Roll 35c. or 8 Sparkling Prints 25c.

MINICAM PHOTO LABS., Dept. 4, LaCrosse, Wis.

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day and night!

Use Kalart Deluxe Model "E-1" Range Finder plus Focuspot

When you use this Kalart combination you can be sure of perfect focus by day AND by night. You'll get the clear, sharp pictures you want.

BY DAY—use the Kalart Deluxe "E-1" Range Finder. This model incorporates many new features in line with post-war planning.

The "E-1" has a new die-cast housing which envelops and protects the rangefinder mechanism from shocks. No encircling bracket is necessary—a standard slide provides for quick attachment of flash synchronizers. There's an opening on top which provides means for attaching the Focuspot.

BY NIGHT—focus with the Focuspot. This new device is used in conjunction with the Deluxe Model "E-1" Range Finder and makes focusing easy in total darkness or under adverse light conditions.

When the Focuspot is switched on, a beam of light is thrown through the Range Finder. This light is split in two by the mirrors and the two beams are projected on the subject to be photographed. The beams act as a guide in locating and **CENTERING** the image on the ground glass. The focusing knob of the camera is turned in the usual way. When the two light beams are superimposed on the subject, your picture is in sharp focus. Camera can be held at waist level, or any level.

Write for literature describing these Kalart precision products. They are available to essential users on suitable priorities. Address The Kalart Company, Inc., Dept. 52, Stamford, Connecticut.

*With Speed Graphics,
E & J Press and most
film pack cameras.

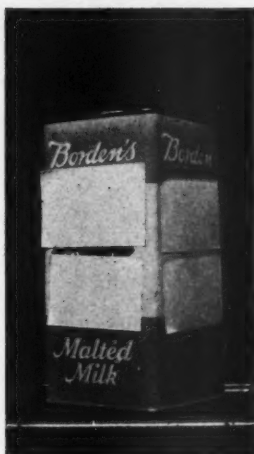


(Continued from page 76)

ing agent some lack of shadow detail will be noticed. To overcome this defect we resort to the trick of blending more than one developing agent. Thus in the very popular M.Q. developers varying amounts of Metol and Hydroquinone are mixed together with the usual preservatives, restrainers and so forth. Fig. 6c. Formulas are: Defender 55D, Eastman D52, D72, and Agfa 40.

A developer will quite naturally become exhausted after it has been used for awhile. Whenever a print or negative is developed, it leaves complex chemicals behind, which poison the bath and lessen its working efficiency. Fresh developer is a 'must' if good work is to be the result.

Heated Ferrotypes Can



AN EMERGENCY electrically heated ferrotypes, suitable for small prints can be made from an empty five pound malted milk can.

Wash sides with soap and warm water then wax with heavy polish. Unscrew lid and cut a hole to receive wire for a light bulb placed inside. A low wattage bulb is best, but if speed is important a slightly larger bulb can be used.

—H. Klein.

Make Your Own Valentine with MARSHALL'S Photo Oils



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CAMERA CLUB

NEWS AND IDEAS

EACH MONTH, bulletins from the clubs arrive at the MENICAM offices with an inspiring picture of what is happening. Careful reading of them reveals an important trend. Today in most clubs "the promotion of the art of pictorial photography" is not the primary objective; rather it is the end result, growing out of the broader aim of promoting fellowship and affording the opportunity for rendering mutual aid among those interested in photography. Now, more than ever before, we attend the camera club meeting to enjoy being with people who share our enthusiasm.

THE DETERMINATION on the part of one man, Cecil B. Atwater, 356 Newtonville Ave., Newtonville, Mass., to promote interest in photography, is bearing fruitful results. It has been his enviable privilege to combine business with pleasure in his peregrinations about the country, visiting camera clubs and pictorialists. He now has collected about a hundred prints representing the best work of active salon exhibitors, which will soon be made available to responsible museums only. In this way residents of cities that do not have an annual salon may see an outstanding set of photographs. The collection will be photographed in Kodachrome by Axel Bahnen.

The following officers of the MANHATTAN CAMERA CLUB were re-elected to serve in 1944. President, Harvey Falk; First Vice President, George Huson; Second Vice-President, Sidney Bernard; Treasurer, Henry Hollander; Secretary, A. Goodman.

The forthcoming Annual Exhibit of the CHICAGO CHAPTER OF PSA will be made into traveling shows and sent on tour to the various Service Posts throughout the country.

PICTORIAL PHOTOGRAPHERS OF AMERICA will be treated to a series of five demonstrated lectures on Learning To Make Salon Photographs, given by Halleck Finley, Ira W. Martin, and Dr. D. J. Ruzicka.

A NEW CAMERA CLUB has been born in the City of Destiny. (That's Tacoma, you Easterners.) The new club will be known as the EVERGREEN PHOTOGRAPHIC GUILD. Peter Copeland is acting as General Chairman, Arthur Bachelor as Secretary-Treasurer, and Hugh Talbot will take care of the prints. Students attending classes given by Nicholas Haz during October and November are responsible for getting the new organization under way.

THE SYRACUSE CAMERA CLUB will sponsor an Exhibition of Photography during May for all up-state New Yorkers. Nine classes and a color section are listed on the entry blank which may be obtained by writing the Syracuse Camera Club, 407 James Street, Syracuse 3, New York.



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A Defender advertisement dedicated to the freedoms for which America fights . . . and which American photographers have recorded so often with their cameras.

Remember the night you wandered into that little town far off the beaten track and ended up at a real country square dance? They had an old-time fiddler there whose every gesture and expression suggested a prize winning character study. You loaded your camera with Defender Film to make the most of your discovery. Today, printed on Defender Velour Black, that is one of your favorite pictures.

But there's something about that picture, that somehow expresses the little things the boys at the front remember about their

homeland—America . . . music and laughter and the God-given right to enjoy living . . . to relax and sing with a free heart . . . to smile because life is good and because there are no shadows of fear or want or oppression to darken the thoughts of men.

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For those in a buying mood . . . we suggest:

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- Contaflex with Sonnar F:2 lens and case. 345.00
- National Graflex Series II, Tessar F3.5 lens. 92.50
- 3 1/4 x 4 1/4 R.B. Series C. Graflex, Cooke F:2.5 lens and accessories. 225.00
- 4x5 R. B. Series B Graflex. 110.00
- 7 1/2" Kodak F:4.5 lens. 97.50
- 3 1/4 x 4 1/4 R. B. Series B Graflex, 6 3/4" Kodak F:4.5. 75.00
- 5x7 Speed Graphic box only, no lens. 67.50
- 4x5 Old Style Speed Graphic with 6 3/4" Kodak Anastigmat F:6.3 in Compound shutter. 45.50
- Large stocks of Leicas, Contax, all models, all lenses. 115.00
- V. F. Zeiss Victor, ground glass, Zeiss Tessar F:4.5 Compur FPA and holders. 197.50
- 10x15 cm. Zeiss Orix, 6 1/2" Zeiss Tessar F:4.5 in Compur A FPA, holders, spring back. \$295.00
- Victor 4, latest turret, 1" F:3.5, 2" F:3.5, 3" F:3.5 and case. 47.50
- Filmo TODA 1" Wollensak F:1.5, 2" Wollensak F:3.5, 3 1/4" Cooke F:3.5, Mayfair case. \$115.00
- Cine Kodak Model A, hand crank only, F:3.5 lens. 398.50
- 9x12 Zeiss Miroflex, Tessar F:4.5, cm, holders and film adapter.
- Korelle Reflex Model II, Tessar F:2.8, interchangeable 6 1/2" Carl Zeiss Tessar F:3.5, focus mt. & sunbad, Bantam color adapter, filters, in leather gadget bag.

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AS THE DAYS grow longer, camera clubbers still argue print sizes. So what? We notice that top point winners in the recent PPA Salon in New York went to A. Aubrey Bodine's "Three Kittens," a 16x20, and Paul L. Anderson's "Early Spring," a 2 1/2 x 8 3/8 contact print. Both received 24 points out of a possible 30.

THE CHARLOTTE PHOTOGRAPHIC SOCIETY, Charlotte, N. C., has recently been organized. Clarence Capps is President; Morton Funkhauser, Vice-President; Calvin Padgett, Treasurer; and the Secretary, J. H. Rhync, Jr., may be reached at 2525 Kenmore Avenue.

ATLANTA CAMERA CLUB NEWS has a new editor, one Hillary Bailey, F.R.P.S., A.P.S.A. The Indiana boy who made good has moved to Atlanta, and club members were just waiting to press him into service. Among other accomplishments, he was editor of Agfa's Diamond and Ansonian; he has published several books; he is a speaker of note; and there are rumors that he has been known to make a picture or two.

SCIENCE MUSEUM PHOTOGRAPHIC CLUB of Buffalo has a traveling salon of 27 prints which is now available for exchange with other clubs. Inquiries as to free dates should be addressed to Clifford Matteson, 376 Millicent, Buffalo, N. Y.

JOHN R. WHITING, managing editor of *Popular Photography*, has been making some trips within five hundred miles of Chicago, talking on color photography, and showing slides of prize winners in his magazine's annual contest. His illustrated talks have been well received.

SOME OF the camera club bulletins, notably Camera Club News of Atlanta, have solicited letters from their members overseas, to be published in the bulletin, giving news of interest to photographers, along with a few objective remarks on some changes in point of view. Such letters help keep those of us at home alive to what's going on in the minds of our friends in uniform in the Halls of Montezuma and elsewhere.

It is reported that there is a pictorialist in Iron Duke, North Dakota that Cecil Atwater did not visit.

THE WINNERS of the January Club-of-the-Month, Print-of-the-Month Contest have been announced by the Metropolitan Camera Club Council. The winning club is the Pictorial Photographers of America, the winning print "Dusk" by D. Delancy of the Westfield (N.J.) Minicam Club. The Manhattan Camera Club was second, with Inwood, Rockefeller Center and Westfield Minicam Club tied for third. Twelve clubs participated in this contest and the winning prints will be shown at the Council office until January 22. The prints were judged by Dr. D. J. Ruzicka, FRPS, FPSA.

CAMERA CLINICS have proved very helpful to members of the ROCHESTER CAMERA CLUB, Rochester, Minn. Each clinic consisted of three meetings, the first, at which exposures were made, the second and third in the darkroom, where film processing and print making

were demonstrated. More clinics will be held, at which special processes will be discussed and demonstrated.

SPEAKING RECENTLY before the TOLEDO CAMERA CLUB, G. G. Granger said: "Break down once in a while, and take some pictures just for the fun of it." He pointed out that a mistake too frequently made is that we start taking pictures of the family and then when we get to the salon print stage the family gets neglected from there on. "Not only are family records valuable but they survive the test of time a lot better than most of the salon prints we make."

Overseas Mailing Instructions for Your Photo Album

Is it possible to send packages, as well as letters, to military personnel overseas? Yes. A sealed package weighing up to eight ounces may be sent to a service man—without his request—at the first class postage rate.

Photographs and small albums of prints securely packaged for mailing will fall, usually, well within the eight-ounce limit.

What, No Snow?

Sir:

Like all cover assignments, yours came simultaneously with the deadline. It sounds very simple to say: "Shoot a pretty girl with a snowman!"

There is no snow. The famous "liquid sunshine" of Southern California was coming down in buckets until it was standing two feet high in the streets.

There was snow in the mountains; too much, as a matter of fact. All roads were closed. There was also the little matter of gas rationing. The Gas Board felt to shoot a picture of a pretty girl in the snow did not constitute a big enough contribution to the war effort to warrant the issuance of extra gas coupons for the 200-mile trip.

There was only one way left open—to shoot it indoors. Very few people keep artificial snowmen in their front parlors. It was quite a hunt until I located one in an old shed on the Metro-Goldwyn-Mayer lot. It looked very sad; a family of mice had made him its headquarters and the poor man was full of holes. We fixed his wounds with cotton and put a new coat of white paint on him, sprinkled him with salt in order to get the glitter of fresh snow, and then we were ready to shoot, that is, after having a sky backing painted.

To make the picture itself was rather anticlimatic and simple. The light consisted of three No. 21 flashbulbs for the key, two for the eyelight to lighten the shadows, one as an overhead to highlight the hair, and four for the backing. The film used was Kodachrome B and the filter a Wratten 2A. The stop was f/16 with the shutter set on time. Frances Gifford is the girl.

L. WILLINGER.

Hollywood, Calif.

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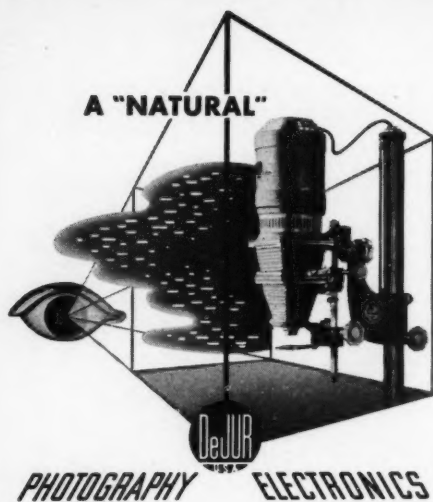
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After the Storm

(Continued from page 31)

may leave you with an area of blank white paper and a spoiled print. After being treated with reducer, prints should be washed for a few minutes, re-fixed in a plain twenty-five percent hypo solution (just plain hypo crystals dissolved in water without any hardener) for ten minutes and then thoroughly washed.

When our prints are made, we should consider toning them. Many papers have a warm tone which is not particularly appropriate for snow and ice scenes. A blue tone, if not overdone, usually results in considerable improvement in the appearance of the prints. "Iron toners" frequently produce too much of a "blue-print" effect and the one is difficult to control. Gold chloride in combination with thiocarbamide and citric acid produces beautiful blue tones on most papers and is very easy to control. Prints tone slowly in this toner and may be removed at any time when the desired tone is reached. This toner is made up in three stock solutions as follows:

Distilled Water	8 ounces
Sol. 1—Thiocarbamide	50 grains
Sol. 2—Citric Acid, C P	50 grains
Distilled Water	8 ounces
Sol. 3—Gold Chloride	15 grains
Distilled Water	8 ounces

The working solution is made in the proportion of one ounce of each stock solution added in the order given above to ten ounces of water. Stir while adding the stock solutions, particularly while adding the gold chloride, to prevent precipitation of the gold. The stock solutions keep well but the working solution should be made up just before use although it

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*From a letter dated December 7th, 1943.

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34th
YEAR

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may be kept in a full stoppered bottle for two or three days if not exhausted on first use.

Of course, this toner produces different tones on various types of paper emulsions. Straight chloride papers tone quite rapidly to a bright, vivid blue, while straight bromide papers do not tone well in the above formula. The slower warm-tone chlorobromide papers give best results.

The Storm Gods taught us a number of lessons, chief among which is, "Avoid trying to cover too much territory."

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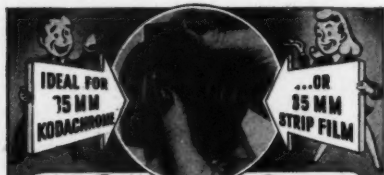
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CHECK IT, a kit containing "Hyp-A-Test, Wash Test and Rinse Test," is available from the Braun Laboratories, 206 South Hutchinson Street, Philadelphia 7, Pennsylvania. The complete kit sells for \$1.00. Hyp-A-Test and Rinse Test check the solutions to see if they have be-



come exhausted, and the Wash Test checks for the presence of hypo in prints. Use of these testing solutions helps to insure more permanent prints.

Waterproof Paint

THE EVERCRETE Corporation, New York 18, N. Y., is now manufacturing Stopzit, a paint for waterproofing cement surfaces. Stopzit was formerly manufactured by the S and E Waterproofing Corporation, and was not available to the public until recently. The paint is available in eleven colors in one- and five-gallon containers. A gallon covers approximately 100 square feet. The cost is about 3c per square foot.



Three-dimensional Pictures

MILITARY NAVIGATION STUDENTS are now being trained by three-dimensional pictures which teach them more quickly to steer by the stars.

A three-dimensional vectograph is a specially treated plastic sheet. On it, two pictures occupy the same space at the same time. Polarizing three-dimensional viewers unscramble the superimposed pictures to recreate the normal condition of three-dimensional seeing.

Prepared as slides for projection on a classroom screen, the vectographs are so strikingly realistic that an instructor walking into the beam of a projected vectograph of the world, appears actually to be walking into the center of the earth. Students feel they are looking at precise wire models of the heavens with relative positions of the stars and the earth immediately apparent.

The new technique eliminates the need for training sailors to interpret depth in flat charts and diagrams.

The vectograph process is the invention of Edwin H. Land, President of Polaroid Corporation, and Joseph Mahler, and was recently perfected by Professor John T. Rule, of the Massachusetts Institute of Technology.



PROFESSOR RULE examining globe used as photographic model for three-dimensional vectographs.

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Victory Sunshade

THE MILLER OUTCALT COMPANY, 267 South Alexandria, Los Angeles, California, announce that they now have in stock the new Mil-o Victory Sunshade and filter holder for Argus Cameras. The lens hood is made of highly polished black tenite and is lined with



felt. It does not interfere with the range finder and holds standard size 31mm filters and portrait lenses. The lens hood fits onto the camera lens by means of a lock screw for the Argus C cameras, and slip on bases for other sizes, such as the Argus A.

Another item now available is a cut-film holder made with a wood base and bakelite sides. Sizes in stock are 2½x3¼ and 4x5.

News from Bausch and Lomb

A NEW INSTRUMENT for testing various eye skills, such as color discrimination, depth perception and acuity, is in use at the Bausch & Lomb Optical Company, Rochester, New York. The tests included in the "Ortho-Rater" were selected because they represent different types of visual skills which are used to some extent in nearly every job.

In the next few months the tests will be given throughout the plant to determine what eye skills are used on each job. Only by testing people who are already working successfully at a given task, can it be determined just what kind of vision is required.

When the desirable eye traits for jobs like inspection, drill press, grinding, polishing, and all others have been determined, the Employment Office will use the information in placing new people at work.

Photo Lab Index Supplement

PHOTO-LAB INDEX supplements 16 and 17 are now ready and may be ordered from Morgan & Lester, 101 Park Avenue, New York. The supplement contains 150 pages of new and revised information.

New Edwal Acid-Fix

THE NEWLY designed 1/2 gallon size package of Edwal Acid-Fix carries a special coupon offering the 96-page darkroom manual, "Modern Developing Methods," at a reduced price. The book is now in its second edition, and regularly sells for fifty cents.



The "Bonus Package" has separately packaged hardener which may be omitted when fixing prints to be toned.

Now available at your Edwal dealer or write direct to The Edwal Laboratories, Inc., 732 Federal Street, Chicago 5, Illinois.

Re-employment Plan

THE PLAN for re-employment of servicemen, established by the Photographic Manufacturers Association, is now in use. Victor Kephler contributed the poster for draft boards, U. S. O. centers and camera stores, which calls attention to job registration. The applicant fills out a blank, which contains all the information that prospective employers need and tells the type of work and section of the country the applicant prefers. The blank is then forwarded to the Association at 299 Broadway, New York, which in turn sends the information on to contact prospective employers.

Focussing Aid

THE EXACT focussing film is now being made with a green tint, to further aid in sharp focussing. For literature, write F. D. Fisher, 207 E. 84th Street, New York 28, N. Y.

Spackle

A SPECIAL PREPARATION called Spackle, used for filling in cracks and smoothing uneven surfaces, is manufactured by the Muralo Company, Inc., Staten Island, New York. Spackle can be applied to wood, metal, paint, wallboard, or most other surfaces, and while it is not waterproof, can be covered with waterproof paint. When using on unpainted wood, it is advisable to first apply a priming coat of oil paint. The material does not shrink, crumble or crack when it dries. It can be mixed to a consistency that can be applied with a brush, trowel, or any leveling or spreading device, and it hardens to a finish that can be sandpapered smooth, if desired. Spackle can be used as a putty or as a surfacing material and is obtainable in most paint and hardware stores.

New Universal Photo Almanac

THE 1944 Universal Photo Almanac contains numerous articles on stills as well as about forty pages of information on motion picture photography. The fifty-page Formulary and Laboratory Section contains film speeds, exposure guides, formulas and tables of weights and measures. There is an elaborate salon section and a full list of paying markets for photographs—about a thousand of them. The Universal Photo Almanac is published by the Falk Publishing Co. and may be ordered, for \$1.25 postpaid, from MINICAM PHOTOGRAPHY, 22 E. Twelfth St., Cincinnati, Ohio.

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We pay from \$1 to \$5 for any Gadget, Kink, or Short Cut accepted by this column.

Lens Shade Filter Holder

THOSE WHO own inexpensive lens shades can adapt them to hold filters. Secure the hollow fabric tubing, called "spaghetti," by radio amateurs who use this material to cover bare wires.

Cut a piece of "spaghetti" slightly longer than the circumference of the filter disk and slit it lengthwise, so that when formed into a circle it resembles a tire casing. The filter disk slips into the casing in the manner of an inner-tube.

Spread adhesive on the outer sides of the "tire" and set it into the lens shade to dry. The disks can then be slipped in or out at will. It is easier to cement the "tire" into the shade, if the disk is left in during the operation.—H. Klein.

Two in One Bracket

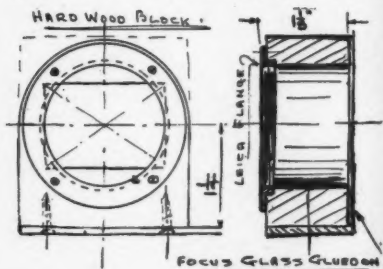
DOUBLE EXPOSURE portrait-post-cards



are more easily made with a sliding bracket that fits on the tripod.

The device illustrated is for a Leica, or other cameras having the tripod hole on one end of the base.

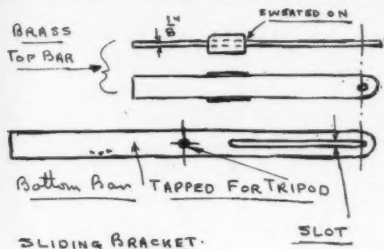
Obtain a Leica lens flange, preferably one



for wood screws. Secure this to a hardwood

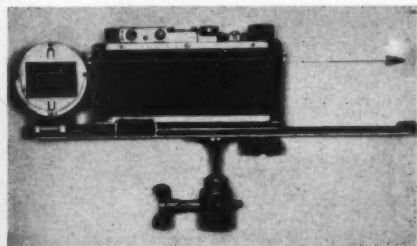
block which is provided with a hole $1\frac{1}{2}$ inches in diameter. The corners of this hole are beveled off to take the whole of the $1\frac{1}{2}$ inch frame. A piece of ground glass is now glued on the back. Paste black paper on it, but keep the frame in the clear.

This housing is fastened to a brass bar $\frac{1}{8}$ inch thick, by two small brass screws. As can

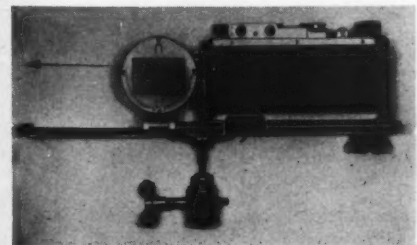


be seen, the bar has two small pieces of brass sweated on to act as a guide over the bottom bar, and also to keep the Leica in position on its top bar. The Leica tripod bolt holds the job together rigidly.

The image is first framed in the full size



home made view finder (If the Leitz "VEHIG" can't be obtained), which is fitted with the camera lens. The tripod bolt is then loosened and the Leica moved over to bring its frame into the exact register formerly occupied by the ground glass focus screen. This is auto-



matic, if the length of the slot in the lower bar is made accurately to act as a stop; or stops may be sweated on as shown.

Use a swivel top on tripod for the vertical or other positions. A simple hood can be fixed to keep extraneous light from the glass screen. —W. Watson Wright, England.



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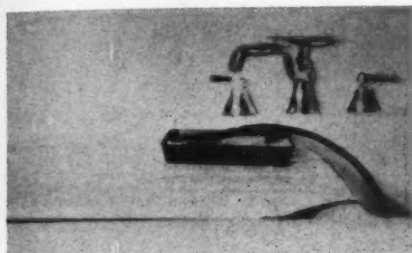
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[92]

Tray Siphon

A SIPHON is an excellent method of washing prints as it withdraws hypo, which being heavier than water, settles to the bottom.

A makeshift siphon may be made from a piece of rubber tubing and a tray.



The siphon, may be started by sucking on one end of the tube, or (if you don't like the taste of hypo), you can submerge the entire tube in the tray until it is filled with water. Then, while holding one end closed, quickly remove it from the tray, place over a drain and release. Be sure not to raise the other end out of the water.—Benjamin Jacobson.

Vignetter

A VIGNETTING device to fit onto your lens shade for use in taking the picture, instead of vignetting the print, can be made by taping a cardboard "pocket" to the shade. Cut out, with ragged edges, the center of another piece of cardboard.

To give the vignetting effect, slide the mask



into the pocket. The necessary amount of area to be vignettted can be checked through the ground glass.—Herman Klein.

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Adjustable Table-Top Tripod

THE TILT TOP described in the January issue of MINIGAM, can be adapted to table top use, by changing the position of the angle brackets and fastening them to a block of wood. The base block should be heavy enough to support, at its lowest adjustment, the weight of



the camera to be used. One brace is screwed to the block and the outfit assembled as shown.

Indoors, the tripod can be used on a table or stand for taking portraits or table-tops. It is fine for positioning the camera when photographing babies and pets, at their "down to earth" level.

Outdoors, the unit can be placed on fence posts, auto fenders, the top of the auto body, or on the ground. Its quality of adjustment makes interesting angle shots possible. If the camera is equipped with a self timer, the photographer can include himself in pictures.—*Herman Klein.*

Enlarger Cover

A SHOPPING BAG, available at grocery stores, makes a dust proof cover for a small enlarger. The bag can be cut down to fit most any size.

Punch holes, around the edges of the bag, and reinforce them with gummed circles, sold at stationary stores for loose-leaf binder sheets. Draw a strong piece of twine or ribbon through, for use as a draw string.—*H. Klein.*

Movable Backgrounds

A SOILED SHEET, an old quilt, a wrinkled newspaper, make interesting backgrounds, if moved constantly during long time exposures.—*J. H. Hendren, M. D.*

Preserve Your Developer

IF YOUR TIME is limited and you have to leave solutions in trays, you had better use tray covers to prevent both evaporation and contamination. Waxed paper floating on top the solution will do very well or you can use a plywood cover painted with an asphaltum paint, to fit over the top of the tray. An inverted 11x14 tray makes a good cover for an 8x10 tray.

Tape Measure Tripod

AN ORDINARY five foot tape measure can be used to help steady a camera in an emergency.

Tie one end of the tape measure around the camera and drop the other end to the ground, stepping on it to draw the tape taut. The tension thus created will help steady the camera and may save a picture (providing the shutter speed is not too slow).—H. Klein.

Emergency Ferrotypes

A GLASS topped table can be pressed into service if glossies are required in a hurry and you don't have enough ferrotypes plates. Clean the glass surface and wax lightly with floor or automobile wax. Squeegee the prints on the



glass (don't bear down too hard) and clean or re-wax for each group of prints.

To speed drying, set the table over your hot air register, controlling the speed of drying at the register. If the table is a very expensive one and you do not wish to risk the warmth of the register, an electric fan may be used to hasten drying.—H. Klein.



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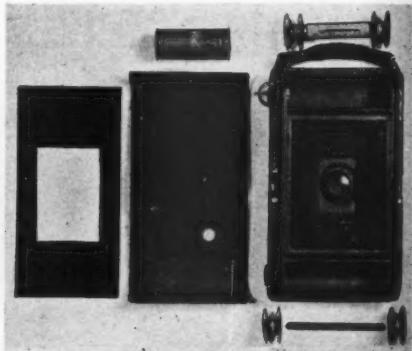
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Convert A Roll Film Camera For Smaller Film

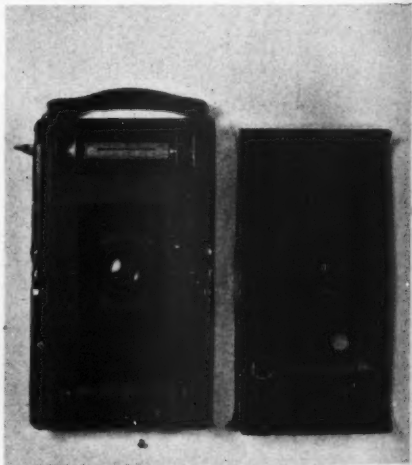
A LARGE CAMERA may be adapted to take smaller film by making a mask to fit inside the back, and auxiliary spools to hold the smaller film.

I obtained an empty No. 118 wooden film spool to fit my camera, removed the metal ends and cut the wooden shank short enough to accomodate No. 120 film. Then I put an additional set of metal pieces on the ends of the shank so that the whole spool fitted into the camera the same as it did before. This spool



Adapter makes rolls film camera take smaller film will now have a double set of metal ends and is the one you will use to wind the film on after it has been exposed.

The next step is to make the spools to hold the fresh roll of film. For this you need four spool-ends. Cut two pieces, from the wooden shank, long enough to make two complete short



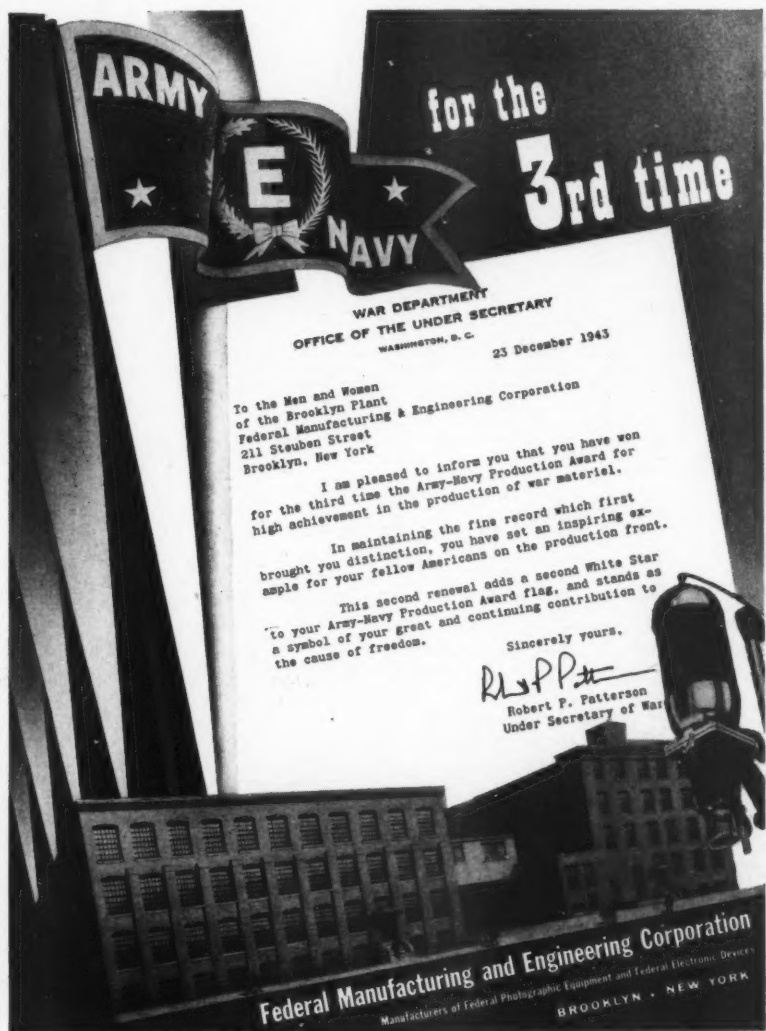
Mask and spool ends in place.

spools, the overall length of which will be 1/4 inch. Drill a slot through the center of the shanks to accommodate a metal shaft 3/32 of

an inch in diameter and long enough to extend from the center of one spool, through the roll of film and half way through the other spool. Next enlarge the hole in one end of each spool so that it will be big enough for the engaging pins of the camera which hold it in place.

To load the camera with the smaller size film, place one of the small spools on the metal shaft, next put on the roll of film and then the other small spool (you will have to use film that is wound on hollow metal spools.) The whole assembly should fit perfectly into the space formerly occupied by the larger roll of film. Cut a mask from a piece of metal or thin opaque cardboard as shown in the diagram.

You are now ready to cut a new window in the camera back. For the above specifications this window should be $\frac{3}{4}$ of an inch in diameter and should be two inches to the left and $\frac{3}{4}$ of an inch above the original window. The original window should be sealed on the inside with a piece of black tape or other opaque material and a piece of transparent red celluloid cemented in the new window. Check the view finder with a piece of ground glass at the camera back, and mark it so that what you see in the marked area of the finder corresponds with what is registered on the film.—
George E. Pittwood.



SALONS AND EXHIBITS

★ Follows P.S.A. Recommended Practices

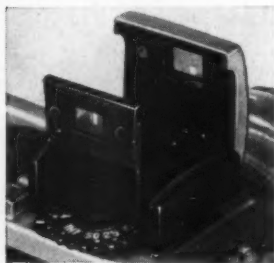
Closing Date	Name of Salon	For Entry Blank, Write to	Number of Prints and Entry Fee		Dates Open to Public
Exhibit to see	★Second Annual Montreal All-Canadian Salon of Photography.				Museum of Fine Arts, Montreal, Feb. 1-15
Exhibit to see	★1944 Oklahoma International Salon of Photography.				Art Center of the Oklahoma City Municipal Auditorium, Feb. 6-20
Exhibit to see	★Eleventh Wilmington International Salon of Photography.				Wilmington Society of Fine Arts, Wilmington, Dela., Feb. 7-20
Exhibit to see	★Philadelphia International Salon of Photography, 1944.				Free Library of Philadelphia, Feb. 19-Mar. 12
Exhibit to see	10th Rochester International Salon of Photography.				Rochester Memorial Art Gallery, Rochester, N.Y. Feb. 25-April 2
February 10	★Seventh Annual National Salon.	W. H. Hudson, Salon Chairman, Camera Club of Rhode Island, 103 Westminster St., Providence, R. I.	4	\$1.00	Museum of Art, School of Design, Providence, R.I., Feb. 22-Mar. 7
February 26	Thirteenth Annual Boston Salon of Photography.	Boston Camera Club, 351 Newbury Street, Boston, 15 Mass.	4	\$1.00	Boston Camera Club Galleries, 351 Newbury St., Boston, Mass., March 20-26
February 26	31st Annual International Pittsburgh Salon of Photographic Art.	Simon Zecha, Secretary, 637 Chislett St., Pittsburgh 6, Pa.	4	\$1.00	Art Galleries, Carnegie Institute, Pittsburgh, Pa., March-April, 1944
March 1	★Fourth St. Louis International Salon of Photography.	W. E. Chase, St. Louis International Salon, Room 500, Missouri Pacific Bldg., St. Louis 1, Mo.	4	\$1.00	City Art Museum, Forest Park, St. Louis, Mo., Mar. 18-April 3
March 8	★Fourth Paducah International Salon of Photography.	E. Earl Curtis, Box 203, Paducah, Kentucky.	4	\$1.00	Main Ball Room, Hotel Irvin Cobb, Paducah, Ky., Mar. 26-April 1
March 8	Leicester and Leicestershire Photographic Society.	Anthony Peacock, F.R.P.S., Barkby Hall, Leicester, England.	4	None for entries from America	City Art Gallery, New Walk, Leicester, England, April 1-23
March 13	Seattle International Exhibition of Photography for 1944.	R. B. Pollard, Secretary, 4532 California, Seattle 6, Wash.			Seattle Art Museum, Seattle, Wash., April 6-May 9
March 18	Twenty-fourth Annual Competition of American Photography.	American Photography, 353 Newbury Street, Boston 15, Mass.	Any		To be judged in April, and thereafter exhibited in several of the principal cities of the U. S.
March 18	Seventh Annual Rocky Mountain National Salon of Photography.	Basil Leonoff, Salon Chairman, 1435 S. Milwaukee Street, Denver 10, Colorado.	4	\$1.00	April 1-15
April 1	★1944 Whitinsville National Salon.	Carl J. Dupree, Salon Secretary, 40 Providence Road, Linwood, Mass.	4	\$1.00	Memorial Hall, Whitinsville, Mass., April 22-30
April 15	★Fifth Toledo International Salon.	Lev. F. Powers, Salon Chairman, Toledo Camera Club, 4450 Vermaas Ave., Toledo 12, Ohio.	4	\$1.00	Toledo Art Museum, Toledo, Ohio May 7-31
April 17	★Third Montreal International Salon of Photography.	Mrs. Raymond Caron, Salon Secretary, 77 Sunnyside Ave., Westmount, P. Q.	4	\$1.00	Museum of Fine Arts, Montreal, May 13-June 4
May 1	Fifth Annual Salon of Photography.	J. W. Fox, Salon Director, 640 S. Main Ave., Sioux Falls, S. D.	4	\$1.00	Y.M.C.A. Lobby, Sioux Falls, S. D., May 10-25

Kodak Bulletin

To Keep You Posted The Kodak Bulletin is designed to serve all who are interested in photography. Here will be posted the news of Kodak products and services—of developments, and of items reinstated in lists thinned by the demands of the war.

With victory, Kodak energies will go again into the business of producing better goods for you. Until victory, the Kodak materials which can be spared to the general market are definitely marginal. Make the most of them.

Parallax Correction Owners of Kodak 35's, *f*/3.5, *f*/4.5, and *f*/5.6, can now equip their cameras with the Kodak Parallax Cor-

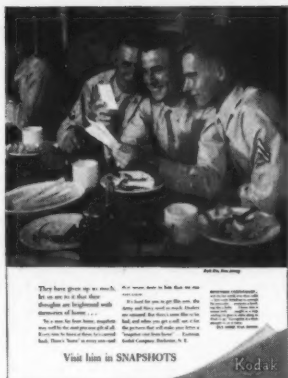


rection Finder, which will frame their views with increased accuracy at any distance. (This finder is *not* for use with the Range Finder model of the Kodak 35, *f*/3.5.)

The Kodak Parallax Correction Finder is substituted for the regular finder quickly and easily, a small screw driver being the only tool needed. In use, the dial below the finder eyepiece is turned so that the distance marking corresponds to the distance focused on. So set, the finder will correct for parallax up to the close-up limit of the camera itself—4 feet.

The price of this accessory is \$1.95, without tax.

"That's my boy!" In Kodak's current series of national ads,



members of the various armed services are shown in the happy circumstance of inspecting a batch of snapshots from home. The men in these pictures are not professional models; they are bona fide soldiers, sailors, marines, and so on. Well, as each of these ads has appeared, the Kodak Advertising Department has received a crop of pleasantly excited letters saying, in effect, "Hey—that's my boy in your picture!" In one case, a young lady told us that it was the first decent picture she had ever seen of her camera-shy friend.

Sometimes, of course, a correspondent is positive that a boy in the picture is his or her own Ralph, whereas it turns out that the boy is really somebody else's Patrick. Anyway, those ads get a lot of attention, as they should. For snapshots from home are honestly important aids to the maintenance of morale. How long has it been since you sent a snap or two to someone in the Service?

Control for Quality—The usefulness of any guide depends, of course, on the intelligence with which it is put to work. One of the best things about the *Print Quality Kodaguide for Kodabromide* is that it fosters good

darkroom sense as a factor in producing better projection prints.

This fact-packed Kodaguide includes a dial calculator by which the user can rapidly determine the necessary exposure change for a shift in magnification, for an altered lens setting, and for the substitution of, for example, Vitava Opal for Kodabromide paper. Then there is a pack of "functional prints"—actual prints on each surface-tint in which Kodabromide is ordinarily supplied. Each such print bears an informal portrait, a gray scale, a 20X graininess patch, a resolution chart, recommended processing, and other data.

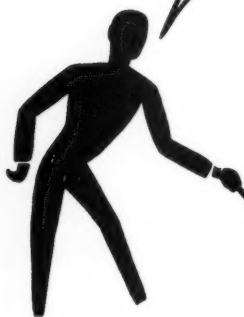
There is also a transparency for use in accurate focusing and for measuring magnifications. All this material is given new point and meaning by the included booklet which covers the making of fine prints in a wholly practical, understandable way. The price is \$1.75.

A Sheet Film Returns Back in the fall of 1942, Kodak Panatomic-X Sheet Film was temporarily suspended from the list of Kodak sensitive materials. Recently reinstated, it should be available now or shortly in all standard sizes from 2¼ x 3¼ up.

To quote the Data Book on Kodak Films, "Kodak Panatomic-X Antihalation Safety Sheet Film is a very fine grain, high quality panchromatic film of moderate speed and contrast. The fineness of grain makes it particularly suited for photomural work and for any other applications where a considerable degree of enlargement is required. It is suitable for outdoor or indoor photography when the highest speed is not needed." Eastman Kodak Company, Rochester 4, N. Y.

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